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MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

JANUARY 1870.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1870.

MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE, STATISTICAL DIVISION,
Washington, D. C., January 31, 1870.

SIR: I herewith report for publication statistics showing the average rate of wages of farm laborers in the several States of the Union; tabular statements of the average yield per acre of farm products for the year 1869, with the average prices per bushel for the same, January 1, 1870; notes on the growing crops of winter grain; a variety of extracts from the correspondence of the Department; together with articles on cotton as a surplus crop, the Michigan fruit region, tea culture in California, menhaden fisheries of Long Island, mineral food of plants, beet-sugar manufacture in the German Zollverein, farm capital, grape tests in Vine Valley, (New York,) live stock receipts at New York and Chicago, the prices of domestic wool for fifteen years at New York, exports of petroleum, meteorological tables and notes on the weather for December, &c., &c.

J. R. DODGE,
Statistician.

Hon. HORACE CAPRON,
Commissioner.

THE RATE OF WAGES OF FARM LABORERS IN THE UNITED STATES.

An investigation of the subject of agricultural wages was undertaken in December, 1866, through the statistical correspondents of this Department, and reports were received from nearly three-fourths of the counties of the United States. The results obtained were entirely satisfactory, furnishing internal evidence of carefulness and accuracy in the original statements. It was found that the average rate of wages in the United States was about $26. The average, when board was furnished in addition to wages, was $15 50, leaving $10 50 as the average allowance for board. Thirty years ago the pay of farm laborers was estimated by Mr. H. C. Carey at $9 per month with board.

It was also shown that while the white laborers of this country obtained $336, the average English farm laborer received but $182, including the value of all extras and allowances; and that while our labor has been subject to competition by millions of immigrants, its rate of reward has been gradually increasing, and the demand for it has outrun the supply.

A further examination of the same subject has just been completed, which shows that the rate of wages has not been greatly reduced dur-

ing the last three years, though the prices of agricultural and nearly all other products have declined materially. The agricultual laborer can now obtain nearly two bushels of wheat for the labor which would pay for one bushel at the close of 1866. In many branches of farm culture the cost of labor seems disproportionate to the cash value of its product, and the remuneration of the employed better than that of the employer. A further reduction may be expected as the finances of the country reach a specie basis.

The average rate of wages for all farm laborers, as established by these returns, is $25 13; with board, $15 88. A little less is paid to laborers boarding themselves than in 1866, and a little more to those who are boarded, the difference representing board being $9 25 against $10 50 in 1866.

The following is a statement of average wages for the different sections of the country, as compared with 1866:

	December, 1866.	December, 1869.
Eastern States	$33 30	$32 03
Middle States	30 07	29 15
Western States	28 91	27 01
Southern States	16 00	16 81
California	45 71	46 38

Prices have increased in the South on account of the profits of cotton culture in the last few years, and have been fully maintained in California, by means of the introduction of new products, and of the large yields of wheat. The eastern and middle States have nearly maintained the old prices; while the western, confined mainly to the pursuits of agriculture, and dependent upon the profits of such labor, have soonest felt the effects of a decline in the value of farm products.

The central belt of States on the parallel of 40°, including the great States of Pennsylvania, Ohio, Indiana, Illinois, and Iowa, has suffered some decline in the rate of wages, though in unequal degrees. Iowa, with settlements and improvements rapidly progressing, very nearly maintains the high rate of 1866. Illinois, enriched by cattle-farming, and pork production, stands next upon the list. Pennsylvania, aided by its greater variety of industries, including manufactures, shows about the same reduction as Illinois; while in Indiana and Ohio, where the crop of wheat was so reduced by winter-killing in 1866, and the corn by drought in 1867, a greater decline in wages is naturally shown.

The following is a statement of the present average rate of wages in these States:

	1866.	1869.
Pennsylvania	$29 91	$28 63
Ohio	28 46	26 35
Indiana	27 71	25 42
Illinois	28 54	27 32
Iowa	28 34	28 30

The effect of reliance upon a single crop is well illustrated by the returns from Minnesota, a State which, though young and sparsely settled as yet, is more completely occupied with wheat culture than any other. A comparison is given with Iowa, the leading crop of which is wheat,

supplemented with a great variety of other products of agriculture and horticulture:

	Iowa.	Minnesota.
In 1866	$28 34	$31 65
In 1869	28 29	28 61

The effect of diversion to other industries, whether mining or manufacturing, in providing markets for agricultural produce, is shown in the high wages paid in Kansas and Nebraska, and the Pacific States and Rocky Mountain Territories. Overland transportation, military occupancy, expeditions of hunters, explorations of science, railroad building, as well as mining itself, all conspire to render prosperous the business of agriculture, with such effect that the gold digger and silver miner remain poor, while the farmer and gardener acquire wealth. In Nebraska, in 1866, labor obtained thirty-five per cent. more than average wages, and in Kansas, an older State, with more agricultural competition, ten per cent., while California paid about sixty per cent. above the average rates.

Three years of settlement and rural activity have done much toward making exclusively agricultural States of Kansas and Nebraska, with a rapid reduction of the rate of labor. The same causes continuing to operate, and the more distant West becoming self-sustaining, prices must still further recede, even below the average rate for the country, unless some portion of the population shall cease to be producers and become consumers only. The idea of exportation of the raw products of agriculture to the Old World from the heart of the American continent, as a source of wealth for an entire State, should have its origin in an insane asylum, and if carried into practice would make the county infirmary the principal local institution. The reduction alluded to is as follows:

	Kansas.	Nebraska.
In 1866	$31 03	$38 37
In 1869	28 96	33 25

New England has a thin, hard soil, requiring for cultivation more than double the labor that is needed in the West. Yet the growing of vegetables and fruits for local markets in manufacturing villages is profitable, and enterprising cultivators make a living and even a competency from very small areas. The following is the average for New England, compared with that for the Ohio Valley, including Ohio, Indiana, and Illinois:

	Question 1.*	Question 2.	Question 3.	Question 4.
New England	$32 09	$20 50	$37 89	$26 10
Ohio Valley	26 36	17 15	31 10	21 27

* Question 1. Average wages per month (without board) of farm laborers hired for the year. Question 2. Average wages per month (with board) of farm laborers hired for the year. Question 3. Average wages per month (without board) of farm laborers hired for the season or a portion of the year. Question 4. Average wages per month (with board) of farm laborers hired for the season or a portion of the year.

A comparison of the manufacturing county of Hillsborough, in New Hampshire, in which are located Manchester, Nashua, and many other manufacturing towns, with the average for the State, furnishes a strong confirmation of similar views:

	Question 1.	Question 2.	Question 3.	Question 4.
Hillsborough County	$40 00	$25 00	$45 00	$30 00
State of New Hampshire	32 66	22 16	39 83	29 13

If large and fertile districts are to remain purely agricultural, the policy of certain southern men in opposing immigration may be wise, for a dense population in such circumstances will exist in poverty and misery; on the other hand, a true balance of the industries, in which the minerals and timber, with other primary products, shall be extended and perfected by the labor of man for the use of an advancing civilization, can enrich a large population in a far higher degree than the most flourishing agriculture, working alone, can aid a very sparse one.

As a purely industrial consideration, enforced by the logic of these labor returns, this system of manifold variety of labor, suited to the utilization of every original product of nature, and adapted to every capacity, preference, age and sex, is to be recommended to the South and West, as essential to their future growth and continued prosperity. Neither exemption from taxation nor political combinations of sections can avail to avert the ultimate consequences of a single course of exhaustive cropping, or of failure to use the untold wealth of nature which God has scattered in rich profusion, and to employ the varied capabilities of human dexterity and strength which is so often left to the disorganization and decay of idleness and disuse.

In 1866, an excitement upon the subject of cotton had made freedmen's wages high. In the Atlantic States, where recuperation had actively commenced, prices were higher than in the more western cotton States, which were slower in starting with reconstructed labor, but more rapid in recovery, on account of the superior quality of their soil. The result is now seen in an actual advance in prices in the following States, while a decline is shown in the other cotton States:

	1866.	1869.
Alabama	$13 40	$15 19
Mississippi	16 72	17 11
Louisiana	20 50	21 37
Arkansas	24 21	25 25

In Arkansas there is a large element of white labor, which increases the average.

Table showing the average rate of wages of agricultural labor per month, when employed either for the year or season, from the returns of statistical correspondents made in December, 1869.

States.	1866.	1869.			
	Per month, for the year, (without board.)	Per month, for the year, (without board.)	Per month, for the year, (with board.)	Per month, for the season, (without board.)	Per month, for the season, (with board.)
Maine	$27 00	$26 25	$16 50	$31 00	$21 44
New Hampshire	32 74	32 66	22 16	39 83	29 13
Vermont	38 84	32 40	21 40	39 00	27 28
Massachusetts	39 84	35 95	22 16	41 00	27 75
Rhode Island	34 40	32 25	20 00	38 00	25 50
Connecticut	34 25	33 00	20 75	38 50	25 50
New York	29 57	29 28	18 64	34 29	23 05
New Jersey	32 27	32 11	19 02	34 38	22 47
Pennsylvania	29 91	28 68	18 05	33 00	22 21
Delaware	24 93	22 00	13 00	25 00	17 50
Maryland	20 36	21 55	12 00	24 70	15 29
Virginia	14 82	15 28	9 65	17 83	12 55
North Carolina	13 46	12 76	7 91	14 98	10 05
South Carolina	12 00	11 54	7 34	13 47	9 81
Georgia	15 51	14 70	9 70	17 66	12 75
Florida	18 00	16 10	10 91	21 25	14 00
Alabama	13 40	15 19	10 52	17 57	12 70
Mississippi	16 72	17 11	11 21	20 08	16 86
Louisiana	20 50	21 37	12 62	27 08	18 46
Texas	19 00	18 83	13 21	21 16	16 97
Arkansas	24 21	25 25	16 60	27 14	18 66
Tennessee	19 00	16 81	11 00	19 52	13 95
West Virginia	25 35	21 39	13 87	25 83	17 62
Kentucky	20 23	18 84	12 57	21 34	14 89
Missouri	26 75	24 47	16 38	29 75	21 31
Illinois	28 54	27 32	17 69	31 04	21 28
Indiana	27 71	25 42	17 03	30 47	20 81
Ohio	28 46	26 35	16 74	31 78	21 72
Michigan	31 26	31 01	20 03	34 01	24 35
Wisconsin	30 84	30 08	18 47	34 00	22 83
Minnesota	31 65	28 61	17 94	34 84	23 54
Iowa	28 34	28 39	17 87	33 64	22 44
Kansas	31 03	28 96	18 38	33 46	22 75
Nebraska	38 37	33 25	19 18	38 33	25 70
California	45 71	46 38	28 69	57 08	36 25

The difference between wages with and without board is slightly less than in the investigation three years ago, except in the southern States, California, and a few of the northern States. The labor changes which the former section is undergoing will still further increase this difference. It is difficult, in fact, to estimate the cost of labor with board in that region, from the peculiar and mixed nature of labor contracts there, very few hiring by the month at a cash rate.

States.	1866.	1869.	States.	1866.	1869.
Maine	$9 56	$9 75	Louisiana	$8 08	$8 75
New Hampshire	10 76	10 50	Texas	6 28	5 62
Vermont	11 84	11 00	Arkansas	8 41	8 65
Massachusetts	16 58	13 79	Tennessee	6 42	5 81
Rhode Island	13 90	12 25	West Virginia	8 88	7 52
Connecticut	12 71	12 25	Kentucky	6 58	6 21
New York	10 25	10 64	Missouri	8 67	8 09
New Jersey	13 29	13 09	Illinois	9 82	9 63
Pennsylvania	11 07	10 63	Indiana	8 99	8 39
Delaware	11 68	9 00	Ohio	9 50	9 61
Maryland	7 60	9 55	Michigan	10 78	10 98
Virginia	5 46	5 63	Wisconsin	10 97	11 61
North Carolina	5 31	4 76	Minnesota	10 55	10 67
South Carolina	4 34	4 20	Iowa	9 47	10 52
Georgia	5 84	5 00	Kansas	11 22	10 58
Florida	5 88	5 19	Nebraska	13 73	14 07
Alabama	3 60	4 67	California	15 36	17 69
Mississippi	5 14	5 90			

DAY WAGES.

Table showing the rate of wages of agricultural labor per day, in transient service, from the returns of statistical correspondents, made in December, 1869.

States.	Per day for transient service in harvest, (without board.)	Per day for transient service in harvest, (with board.)	Per day for transient service other than in harvest, (without board.)	Per day for transient service other than in harvest, (with board.)
Maine	$2 17	$1 65	$1 48	$1 05
New Hampshire	2 37	1 95	1 79	1 41
Vermont	2 46	2 00	1 76	1 28
Massachusetts	2 37	1 95	1 92	1 37
Rhode Island	2 37	1 75	1 73	1 18
Connecticut	3 00	2 37	1 87	1 37
New York	2 53	1 99	1 64	1 19
New Jersey	2 63	2 09	1 63	1 15
Pennsylvania	2 23	1 73	1 43	1 04
Delaware	1 87	1 50	1 30	95
Maryland	2 16	1 67	1 20	77
Virginia	1 48	1 13	80	55
North Carolina	1 37	1 04	74	49
South Carolina	1 15	90	70	50
Georgia	1 24	90	83	60
Florida	1 25	87	96	72
Alabama	1 24	95	86	61
Mississippi	1 56	1 27	1 10	90
Louisiana	1 54	1 13	1 04	83
Texas	1 58	1 26	1 16	84
Arkansas	1 67	1 40	1 36	1 02
Tennessee	2 10	1 59	1 05	68
West Virginia	1 78	1 29	1 14	79
Kentucky	1 83	1 38	1 10	77
Missouri	2 30	1 84	1 44	1 02
Illinois	2 34	1 94	1 50	1 13
Indiana	2 16	1 77	1 36	1 01
Ohio	2 15	1 72	1 44	1 05
Michigan	2 76	2 25	1 66	1 17
Wisconsin	2 45	1 96	1 56	1 15
Minnesota	2 90	2 36	1 64	1 18
Iowa	2 85	2 24	1 52	1 13
Kansas	2 08	1 63	1 56	1 12
Nebraska	2 41	2 00	1 62	1 26
California	2 82	2 04	2 13	1 50

FREEDMEN'S LABOR.

The general tenor of reports indicates a gradual improvement in the quality of freedmen's labor. The wild notions that freedom is synonymous with idleness and that a free farm well stocked is an incident of suffrage are generally discarded by the colored man. The trial of independent farming without capital or foresight has so often resulted in total failure and comparative destitution and suffering, that only a very few, whose energy has purchased success, or those who prefer semi-starvation to regular work, still continue to cultivate land on their own account. Freedmen are more inclined than formerly to enter into contracts for their labor. The copartnership system still prevails very generally—"working on shares" as it is commonly called. It is a pernicious system, is becoming unpopular, (as we predicted a year or two ago,) and should be exchanged for fair wages as soon as the change can be made. Our correspondent at Tallahassee, Florida, says: "Most of the planters of this county keep up the ruinous plan of hiring laborers for a portion of the crop, giving generally one-fourth and board, or one-third without board." Among the objections to this system are the following:

1. It is not a voluntary asssociation from similarity of aims and in-

terests, but an unwilling concession to the freedman's desire to become a proprietor, or an inability to make prompt payments of wages in cash.

2. It is a complicated copartnership, opening the door to fraud on one side, and unfaithfulness and desertion on the other.

3. It is not equitable between the freedmen, as it renders impossible a proper discrimination between the industrious and the idle, the dexterous and the incapable.

4. It leaves uncontroled and almost undirected those who have never been subject to self-management or self-restraint.

5. It almost invariably inspires exaggerated expectations, leads to improvident drafts upon an uncertain future income, and ends in disappointment and discouragement.

6. It debars the proprietor from exercising a control over the plantation, and its operations essential to present success, and the permanent improvement of the estate.

The whole history of cotton production in the past four years attests the importance of these and other objections to the share system. It is satisfactory neither to employer or employed. The best labor contract is the simplest—stipulated wages for faithful service, which should be paid promptly as agreed in cash, with an equitable portion reserved to the end of the year, both to secure the planter against having his cotton left unpicked, and to give the freedmen a surplus for accumulation, or the supply of other than daily wants.

The present contracts are various. On rich lands the prevailing agreement makes labor alone equivalent to one-fourth of the crop; labor and rations one-third of the crop; labor, rations, and forage for horses or mules, one-half of the crop. The laborer "finding himself" and getting one-third of the crop, also has a cabin to live in, and sometimes firewood, garden, and pasture for a cow. On poor land a third is sometimes given for labor alone. Occasionally the bare land is rented for a third of the crop. Perhaps the plan adopted in the largest number of cases is the furnishing of plantation, fixtures, stock, and forage for two-thirds of the crop, labor obtaining one-third, subject to charges for provisions advanced for rations.

Extra labor is obtained for cotton-picking, and paid at the rate of fifty to seventy-five cents per hundred pounds of seed cotton in the Atlantic States, and at seventy-five cents to one dollar per hundred in the more western States, where labor is scarcer and the yield more abundant.

Rice, in Glynn County, Georgia, is harvested and stacked at a cost of about $2 40 per acre, and is conveyed from the fields and stored at $2 per acre, and is threshed by steam at about six cents per bushel. The rough rice bearing the outside hull is then sent to be milled into clean rice, ready for market.

Rice is a specialty in Georgetown County, South Carolina. All other provision crops are insignificant, and no other grain is raised for market. Drainage being a prerequisite to such cropping, a strong force is required for heavy work in ditching and embanking. For these purposes Irish are economically employed during the winter months at twice the compensation of colored laborers. They receive $1 50 per day, working from sun to sun, or $35 per month with board. Cultivation and harvesting are done by colored laborers. The threshing is mostly done by steam; in few cases by horse-power; and occasionally by the tedious and expensive method of the flail. Threshing-mills are found on all the large estates, and are run by freedmen. Freedmen contracting by the year receive $13 per month cash, with accommodations for

themselves and families, a garden spot, and one to three acres of land in addition, receiving no food provision. When hired by the day, they receive $1, without board, for about six hours work. Hoe hands receive fifty cents per day, without board, and are never employed by the season.

In sugar plantations, fifty cents extra is given for night work in grinding cane.

A great loss to agricultural production results from the assertion by freed women of what they assume to be the right of woman to a living without labor. At present no industry is available for income except field service, as cultivating or picking cotton, which is light and healthful, and to which they are accustomed; but they imagine that to be free means to be idle, to dress, to gossip, and to ape the style of those of superior fortune.

In portions of Virginia, as Princess Anne County, where women constitute a considerable proportion of farm laborers, fifty cents per day, or twenty-five cents with board, is allowed for their service. They will not hire either by the month or year.

It is evident that the disinclination of women to labor in the field, and the inefficiency of the men from being left to their own management under the share system, have limited the production of cotton and other crops. The correspondent at Arkansas Post, James H. Moore, sends records of cotton picking by thirty-five men and women and children in 1859, showing an average of 10,291 pounds picked by each in fourteen weeks, equivalent to eleven bales of four hundred pounds each. He states that in 1869 nearly the same number of hands, on the same land, did not average more than one-third of that amount. One of the hands, "Guy," in 1859, picked 12,461 pounds in fourteen weeks; and in 1869, but 3,646 pounds in fifteen weeks. "Sarah," in fourteen weeks of 1859, picked 8,761 pounds; and in sixteen weeks of 1869, but 3,519 pounds. He says the reduction is upon a similar ratio along the Arkansas River; and, if the same elsewhere, assumes that the present force of colored laborers do not pick more than 1,000,000 bales of cotton.

From data received from the entire cotton belt, it is evident that more than half of the crop is cultivated and gathered by blacks; yet it is undeniable that a considerable portion of it is now made by white labor, and the proportion is increasing. The time will probably come when much the larger portion will be the product of white labor.

HARVESTING AND GARNERING.

In addition to the inquiries concerning wages of labor paid by the day or month, the following were included in the circular:

Price, per acre, of harvesting and stacking wheat, including all the labor of men and horses.
Price, per bushel, of threshing and separating wheat.
Price, per bushel, of threshing and separating oats.
Price, per bushel, of husking and cribbing corn.
Price, per bushel, of shelling corn.
Price, per acre, of cutting, curing, and stacking hay.
Price, per acre, of cutting hay only.

The results of the returns, so far as they admitted of tabulation, are presented in the following tables, from which it appears that the average price per acre of harvesting and stacking wheat is $3 25. The apparently low rate in California, where labor is well paid, is due to the

fact that large areas are harvested by labor-saving modes, and especially by the employment of "headers," which leave most of the straw standing. The cost of cutting, curing, and stacking hay varies with the character of the surface and rate of yield, and averages $4 51 in New England, $3 76 in the Middle States, $3 22 in the South, and $2 93 in the West. The average cost of cutting is $1 04. The average cost of husking and cribbing corn is six cents and two mills; in the West, six cents and nine mills. In the South, the prices named are nominal, the "shucking" being done as an evening frolic, at the cost of refreshments or a supper, or, in some cases, "supper and plenty of whisky." The average cost of shelling corn is four cents and five mills.

In the threshing of grain the ancient flail has been discarded, except in a few localities and for small patches, for horse-power threshers and separators, and to an increasing extent for steam threshers. Yet the most primitive modes of threshing are reported. In Conejos County, Colorado, where a threshing machine cannot be found, the custom prevails of hauling wheat and oats to a threshing floor of earth and treading out the grain with horses, substantially in the mode of three thousand years ago.

The threshing machines employed are operated, some by a single horse, some by two horses, some by four, but oftener, in grain-growing sections, by eight or ten horses. An equal or larger number of men are required to run the machine and make proper disposition of the straw and grain. A part of these are provided by the operator, and the remainder are furnished by the farmer, who invaribly feeds the horses and boards the men. The itineracy system is followed by the proprietor of the machine, which makes a circuit of the neighborhood, and does the threshing and cleaning for scores of grain-growers. While most threshing is done by professional threshers, many farmers run their own machines. Unless a man finds difficulty in getting the work done at the proper time, it is found unprofitable to keep a machine costing hundreds of dollars idle for fifty weeks in the year.

The rate is by no means uniform, being higher in thinly settled regions, with small lots of wheat or other grain, and a minimum charge is designated for setting the machine when the lots are too small for fair pay at the bushel rate. In the principal wheat-growing districts, the rate per bushel is five or six cents, and ranges to seven, eight, or ten cents. The actual cost is increased by the expense of extra "hands," their board, and the feed of horses. Another mode of compensation is by levying a toll of a certain percentage of the crops, after the manner of millers. This is sometimes one bushel in ten, and from that high rate to the other extreme of one bushel in thirty-three, or from ten to three per cent.

In Maine a toll of from one-tenth to one-sixteenth is taken, and the thresher usually furnishes two men and a pair of horses with the machine. In Hillsborough and in Sullivan County, New Hampshire, six dollars per day is charged for a small machine with two horses and two men; in other counties, from eight to fourteen cents per bushel for wheat, and from eight to ten for oats. In Essex and Orange, Vermont, ten cents for wheat; in Bristol, eight cents; and in Addison, a toll of one-fourteenth. In Massachusetts and Connecticut, where little grain is grown, prices are higher—toll of one-eighth being charged in some places. In Tolland County, Connecticut, eighteen cents per bushel for wheat, and in Hartford County twenty-five cents.

In the larger wheat-producing counties of New York 5 cents per bushel is charged for wheat, and 2½ to 3½ for oats; in others, higher prices; in

Westchester, $12 per day for machine; in Delaware, one-twelfth of the wheat. A steam thresher is reported in Seneca, nominally six horse-power, costing $800, requiring 700 pounds of coal per day, and threshing 400 bushels. In New Jersey, the share for threshing varies from one-fourteenth to one-twentieth. Threshers generally furnish two horses and two hands; a few larger machines require more service of men and horses. In Pennsylvania a wide variety of contracts exists, the price per bushel ranging, according to the amount of grain and the proportion of teams and men furnished by the thresher, from 4 to 10 cents.

In Virginia, where a machine and four to six horses and three men are furnished, the charge is one-tenth or one-twelfth; in most of the counties small machines are in use, and not more than two men and two horses supplied, for one-twentieth, oftener one-twenty-fifth, and sometimes one bushel in thirty-three. A cash rate per bushel is rarely paid. In the Carolinas and Georgia higher rates obtain, from one-eighth to one-fifteenth; in North Carolina, in some cases, one-twentieth. A few steam machines are reported in these States. An average capacity of threshers in this region is about 200 bushels per day.

In Alabama the toll is one-tenth to one-fourteenth; in Mississippi, one-tenth to one-twelfth; in Texas, still higher, one-seventh to one-tenth. In Tennessee the charge varies from one-tenth to one-twentieth, according to the amount of power and labor furnished by the thresher. In Kentucky the western custom of fixing a rate per bushel prevails, which ranges from 4 to 10 cents.

In Ohio, Indiana, Illinois, Michigan, Iowa, Minnesota, and other western States, eight and ten horse-power machines are in common use. In the majority of cases the thresher furnishes four to six horses and three men, the farmer furnishing, on an average, four horses and six to ten men, the larger number of hands being required when the straw is stacked—threshing 300 bushels of wheat, or 500 bushels of oats per day. In a few counties in each of these States steam power is obtaining the ascendancy, doing nearly double the amount of work, the price per bushel averaging a very little higher than that of threshing by horse power.

In Missouri the charge for threshing varies from 5 to 10 cents for wheat, (in a majority of cases 7 to 8 cents,) and from 3 to 5 cents for oats. Often the thresher furnishes all the horses, charging the higher prices mentioned. Steam power has been introduced to some extent.

In Utah a toll is taken for threshing wheat of one-seventh to one-twelfth; and about the same rates prevail in other Territories, though some reports from Montana place the cost per bushel at 50 cents, and one in New Mexico gives 60 cents. In California the price per bushel ranges from 4 to 10 cents.

Neither the price per bushel, nor the share of grain given, represents the total cost of threshing and cleaning. The labor of extra men and horses, and the board and forage, cost as much as the compensation of the thresher—making the average cost, instead of 6 to 8 cents, at least 12 to 15 cents per bushel.

The following are the tabulated results of the returns relative to harvesting and cleaning grain:

Table showing the average prices per acre of harvesting and stacking wheat and hay, and per bushel for husking and cribbing and of shelling corn, from the returns of statistical correspondents made in December, 1869.

States.	Price per acre of harvesting and stacking wheat, including all the labor of men and horses.	Price per acre of cutting, curing, and stacking hay.	Price per acre of cutting hay only.	Price per bushel of husking and cribbing corn.	Price per bushel of shelling corn.
Maine	.....	$3 35	$1 22	05. 0	03
New Hampshire	.....	4 00	1 29	06. 2	04. 3
Vermont	.....	2 25	0 87	09. 6	04
Massachusetts	.....	5 81	2 04	.....	.....
Rhode Island	.....	6 12	1 48	10. 2	.....
Connecticut	.....	5 50	1 50	.....	.....
New York	$3 70	3 13	1 01	08. 6	04. 1
New Jersey	3 69	3 66	1 28	06. 2	03. 3
Pennsylvania	3 96	4 03	1 20	07. 5	03. 5
Delaware	.....	5 00	4 00	04	05
Maryland	3 04	2 97	1 13	11. 4	04. 6
Virginia	2 15	2 28	1 09	07. 3	05
North Carolina	1 71	2 46	1 16	05. 1	03. 1
South Carolina	1 50	.....	.....	03. 5	04
Georgia	1 72	5 50	2 55	07. 1	05. 9
Florida	.....	.....	.....	.....	.....
Alabama	1 43	4 33	2 00	06. 3	05. 9
Mississippi	.....	.....	.....	05. 6	06
Louisiana	.....	.....	.....	.....	.....
Texas	3 04	4 12	1 77	07. 1	07. 2
Arkansas	1 70	2 75	1 70	08	03
Tennessee	2 10	3 10	1 51	05	04. 5
West Virginia	2 58	2 46	1 05	06. 3	03. 8
Kentucky	2 53	2 61	1 32	06. 6	04. 7
Missouri	3 74	2 63	0 93	08. 3	04. 8
Illinois	3 46	2 86	0 91	06	03
Indiana	3 03	2 46	0 94	06. 5	04
Ohio	3 68	3 23	0 94	06. 3	04. 1
Michigan	3 15	3 60	1 10	05. 2	04
Wisconsin	3 16	2 91	0 94	06. 8	04. 8
Minnesota	3 66	3 33	1 10	08. 7	05. 4
Iowa	3 18	2 55	0 84	06. 2	03. 7
Kansas	3 08	3 20	0 92	07. 1	03. 4
Nebraska	4 05	3 02	1 02	06. 9	03. 6
California	2 91	3 29	1 50	09. 0	09. 5

YIELD AND PRICES OF FARM CROPS.

The returns of home prices of farm crops as exhibited in the following tables show much larger reduction than was noted a year ago in many of the products of the farm. The fall in wheat has marked an era in the history of prices of this grain. In the New England States, where the prices ranged from $2 to $2 42, the averages now range from $1 40 to $1 83; in New York the reduction is from $2 08 to $1 37; in Ohio, from $1 65 to $1 03; in Illinois, from $1 20 to 76 cents; in Iowa, from 95 cents to 52 cents.

The price of corn has fallen in New England from the average of $1 42 to that of $1 30; New York, from $1 12 to $1 03; Pennsylvania, from $1 to 92 cents; while in Ohio the price has increased from 60 cents to 72 cents; in Illinois, from 43 cents to 57 cents; and in Iowa from 37 cents to 50 cents. The price of corn has increased throughout the West, except in Minnesota, Nebraska, and Kansas, where the local supply from

the crop of 1868 was insufficient, and where the corn production is beginning to increase in a degree somewhat commensurate with its comparative importance.

For prices of other crops reference is made to the tabulated returns.

The yield per acre has been reported in accordance with former returns of the principal crops, and may be studied in detail in the tables.

The returns indicate a decrease in the average of wheat in Illinois, Indiana, Michigan, New York, the Eastern States, and in the cotton States; about the same area in California, and a slight increase in other States. Other winter grains show a slight reduction in average.

The reports of condition of winter wheat are not generally favorable; the reduction in the Ohio valley, expressed as a percentage, ranging from 6 to 20 per cent. The winter has thus far been unfavorable to fall sown grain, but more will depend upon the remaining portion and the character of the spring months as a prognostication of the harvest. In Wisconsin, Minnesota, Kansas, Texas, California, and South Carolina an average condition of wheat is indicated; and all other States are below the average. The probabilities at present are certainly opposed to the prospect of another year of marked productiveness.

An increased average of barley is reported from Kentucky, Missouri, Indiana, Wisconsin, and Kansas. Its condition is little better than that of wheat throughout the Ohio valley and the northwest. The reduction is represented to be 13 per cent. in Missouri, 9 in Indiana, 8 in Illinois, 7 in Ohio, and 5 in Michigan.

Table showing the average price and yield per acre of the principal crops of the United States for 1869, and the area and condition of winter grain.

STATES.	WHEAT.		RYE.		BARLEY.		OATS.		CORN.	
	Average yield per acre in 1869, stated in bushels.	Average price per bushel on 1st of January, 1870.	Average yield per acre in 1869, stated in bushels.	Average price per bushel on 1st of January, 1870.	Average yield per acre in 1869, stated in bushels.	Average price per bushel on 1st of January, 1870.	Average yield per acre in 1869, stated in bushels.	Average price per bushel on 1st of January, 1870.	Average yield per acre in 1869, stated in bushels.	Average price per bushel on 1st of January, 1870.
Maine	15.4	$1 83	17.7	$1 43	20.7	$1 14	30.5	$0 68	24.3	$1 27
New Hampshire	17.5	1 85	15	1 38	27	1 05	30	69	30	1 30
Vermont	18	1 57	16	1 45	22.8	1 34	35.6	67	34	1 40
Massachusetts	18	1 75	18.4	1 30	25	1 56	31	73	34.2	1 32
Rhode Island	.....	.....	14.2	1 40	23	1 28	31	71	25.2	1 28
Connecticut	17.5	1 40	12.3	1 38	.....	.....	33.7	73	31.2	1 30
New York	16	1 37	14.5	1 03	24.1	99	35	56	27.1	1 03
New Jersey	16.5	1 34	14.8	1 12	.....	.....	34.1	57	3.08	95
Pennsylvania	14.8	1 28	13.7	99	23.6	1 02	35.7	47	31.4	92
Delaware	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	11.8	1 30	12.3	97	.....	.....	19.8	51	20.2	73
Virginia	10.5	1 21	9.3	91	17.3	87	17.1	48	13.5	91
North Carolina	8.4	1 53	8.3	1 15	.....	.....	15.1	65	13.3	1 00
South Carolina	6.6	2 09	5.4	1 68	.....	2 50	10.8	95	11.6	1 40
Georgia	7.4	1 65	6.5	1 51	13.8	1 83	12.3	95	10.3	1 21
Florida	.....	.....	.....	.....	.....	.....	13	1 37	10.4	1 45
Alabama	7.8	1 62	7.3	1 47	11.7	1 81	12.6	91	12.5	1 14
Mississippi	9	1 75	7.7	1 70	.....	.....	23.7	98	15.4	1 12
Louisiana	11.5	1 25	.....	.....	.....	.....	13	1 15	19.3	1 09
Texas	11.1	1 70	17.3	1 10	26.6	1 04	28.4	70	32.5	73
Arkansas	11.8	1 51	12	1 35	.....	.....	24.7	75	28	92
Tennessee	8.4	1 15	10	1 00	16.4	1 12	16.7	60	18.1	77
West Virginia	11.7	1 26	12.9	90	16.7	1 06	25.2	46	27.8	79
Kentucky	11	1 10	11.2	84	19.5	1 23	19.4	48	25	66
Missouri	14.1	80	16.9	69	23.1	1 12	33	40	30.6	60
Illinois	11.2	76	14.4	64	20.9	90	32.5	37	23.2	57
Indiana	14.4	93	15.5	76	22.9	1 03	29.5	44	23.2	70
Ohio	15.5	1.03	14.8	82	25.5	1 02	33	46	30.1	72
Michigan	15.2	97	16	75	24.2	85	35.4	49	28.9	74
Wisconsin	15.3	68	15	62	25.9	80	36.2	40	26.4	65
Minnesota	16.3	59	18.8	56	25.7	64	37.5	42	29.1	63
Iowa	14.7	52	16.1	52	26.5	61	37.3	35	33.2	50
Kansas	18.5	79	25.8	69	30.6	83	42.1	37	48.4	44
Nebraska	17.8	51	19.4	53	30.2	71	41.3	34	42.2	37
California	20.7	93	31.5	1 22	35.3	65	41.8	62	41.4	90

Table showing the average price and yield per acre of the principal crops, &c.—Continued.

STATES.	BUCKWHEAT.		POTATOES, (*Solanum tuberosum.*)		POTATOES, (*Batatus edulis.*) sweet.		LEAF TOBACCO.		HAY.	
	Average yield per acre in 1869, stated in bushels.	Average price per bushel on 1st of January, 1870.	Average yield per acre in 1869, stated in bushels.	Average price per bushel on 1st of January, 1870.	Average yield per acre in 1869, stated in bushels.	Average price per bushel on 1st of January, 1870.	Average yield per acre in 1869, stated in *pounds.*	Average price per pound on 1st of January, 1870.	Average yield per acre in 1869, stated in *tons.*	Average price per ton on 1st of January, 1870.
Maine	21.6	$0 83	128	$0 52	.....	.....	.....	.....	.91	$15 25
New Hampshire	22.5	82	150	45	.....	.....	.....	.....	1.06	15 00
Vermont	20.6	86	160	38	.....	.....	.....	.....	1.15	13 00
Massachusetts	11.5	1 06	106	68	.....	.....	1,200	26	.99	24 42
Rhode Island	.....	.....	98	68	.....	.....	.....	.....	1.09	21 75
Connecticut	16.2	1 22	108	63	.....	.....	1,450	27	1.43	18 09
New York	20.1	86	114	51	.....	.....	.....	.....	1.54	12 66
New Jersey	14.2	1 13	93.4	62	81	$1 29	.....	.....	1.50	20 20
Pennsylvania	16.4	93	102	60	80	1 22	.....	.....	1.41	14 85
Delaware	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	11.4	1 10	73	64	72	1 17	500	13.3	1.16	17 95
Virginia	10.7	87	50	69	53	1 55	418	10.3	1.46	15 41
North Carolina	30.2	71	74	80	76	71	508	13.7	1.44	12 11
South Carolina	.....	.....	60	1 33	33	1 16	.....	.....	1.25	23 33
Georgia	.....	.....	61	1 40	58	92	375	19.4	1.46	21 45
Florida	.....	.....	.....	.....	101	63	.....	.....	.....	.....
Alabama	.....	.....	63	1 80	68	87	.....	.....	1.37	26 25
Mississippi	.....	.....	89	1 09	98	81	.....	.....	1.16	19 33
Louisiana	.....	.....	90	75	76	60	.....	.....	.....	.....
Texas	.....	.....	132	1 80	130	69	.....	.....	1.69	14 18
Arkansas	.....	.....	76	1 00	109	99	750	13.7	1.33	12 60
Tennessee	6.2	1 08	50	73	49	94	548	13	1.39	20 34
West Virginia	14.2	93	82	57	72	1 23	707	13	1.44	11 17
Kentucky	.....	.....	69	53	54	1 12	667	9.1	1.31	14 66
Missouri	21.1	81	115	47	101	1 23	992	10.6	1.77	11 17
Illinois	15.1	76	103	41	100	1 11	633	8.4	1.59	9 87
Indiana	12.5	83	106	44	76	1.29	731	9.6	1.49	10 52
Ohio	12.5	91	112	42	97	1.35	700	6.2	1.44	10 99
Michigan	17.7	79	155	37	.....	.....	.....	.....	1.50	12 80
Wisconsin	17.6	71	107	52	.....	.....	.....	.....	1.45	10 50
Minnesota	18.8	81	112	72	.....	.....	.....	.....	1.55	8 60
Iowa	16.7	82	123	51	.....	.....	.....	.....	1.86	7 70
Kansas	18.5	99	149	46	110	1 29	.....	.....	1.75	5 55
Nebraska	16.7	1 22	140	40	.....	.....	.....	.....	1.70	5 03
California	.....	.....	165	79	153	1.32	.....	.....	1.55	12 70

Table showing the average price and yield per acre of the principal crops, &c.—Continued.

STATES.	SORGHUM MOLASSES.		WINTER WHEAT.		WINTER RYE.		WINTER BARLEY.	
	Average yield per acre in 1869, stated in *gallons*.	Average price per gallon on 1st of January, 1870.	Average amount sown compared with 1868.	Condition of the crop compared with an average.	Average amount sown compared with 1868.	Condition of the crop compared with an average.	Average amount sown compared with 1868.	Condition of the crop compared with an average.
Maine	.....	.....	10	10.5	10.2	10.2	.....	.....
New Hampshire	.....	.....	.....	.....	10.1	10	.....	.....
Vermont	.....	.....	.....	.....	.....	.....	.....	.....
Massachusetts	.....	.....	9.6	9.3	10.1	10.1	.....	.....
Rhode Island	.....	.....	.....	.....	10.7	10.5	.....	.....
Connecticut	.....	.....	.....	.....	10.5	11	.....	.....
New York	.....	.....	9.5	9.3	9.2	9.3	10	9.2
New Jersey	.....	.....	10.6	9.9	9.8	9.9	.....	.....
Pennsylvania	83	$0 60	10.3	9.7	9.5	9.5	9.8	9.8
Delaware	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	91	76	9	8.8	10.4	9	.....	.....
Virginia	65	66	10.2	8.8	10	8.9	.....	.....
North Carolina	66	63	10.2	9.7	10.1	9.7	.....	.....
South Carolina	29	82	10	10	10.8	10.1	.....	.....
Georgia	79	70	10.1	9.9	9.8	9	11.7	10
Florida	.....	.....	.....	.....	.....	.....	.....	.....
Alabama	71	83	9.8	9.7	8.7	9.8	9	10.2
Mississippi	91	1 00	7.8	9.3	9.5	9.7	.....	.....
Louisiana	.....	.....	.....	.....	.....	.....	.....	.....
Texas	98	80	9.6	10.3	10.6	10.4	10.5	10.5
Arkansas	64	76	11.1	9.8	10	10.6	.....	.....
Tennessee	65	67	9.7	9.5	9.7	9.5	9.8	9.8
West Virginia	110	69	11.5	9.7	9.8	9.5	7.6	9
Kentucky	77	57	11.5	9.9	9.5	10	10.1	9.6
Missouri	94	67	10.4	9.1	9.8	6.6	10.9	8.7
Illinois	90	67	9.2	8.9	9.9	10.8	9.2	9.2
Indiana	95	61	9.5	8	9.4	8.4	10.1	9.1
Ohio	95	73	10.2	8.9	9.6	9.4	9.9	9.3
Michigan	108	89	9.4	9.4	9.4	9.5	9.6	9.5
Wisconsin	60	71	10.3	12.6	9.5	12.1	10.5	10.2
Minnesota	81	92	10.4	10.5	11	10	.....	.....
Iowa	94	84	10	9.9	10.3	12.3	.....	.....
Kansas	120	68	15.1	11.6	12.9	10.6	11	10.6
Nebraska	133	83	.....	.....	14	10	.....	.....
California	.....	.....	10	10.2	.....	.....	9.6	10.2

NOTES ON WINTER GRAINS.

Erie County, N. Y.—The open winter has been unfavorable to wheat; on account of the wet fall a smaller breadth was sown than in 1868.

Washington County, N. Y.—The ground is bare; bad for winter grain.

Albany, N. Y.—Winter wheat was sown in good condition, and now looks green and promising.

Steuben County, N. Y.—Winter wheat and rye are looking well.

Burlington County, N. J.—Winter wheat made little growth last fall, but has grown some during the past few weeks.

Beaver County, Pa.—Wheat not as promising as at corresponding date last year.

Columbia County, Pa.—Insects have damaged wheat in this county; the fields, where not covered with snow, present quite a nude appearance.

Chester County, Pa.—Grain was put in late, and it had but little growth before the early winter set in; it is weak and in poor condition to endure our trying winters of freezing and thawing.

Butler County, Pa.—The changeable weather during the past two weeks has had a damaging effect upon winter grains.

Delaware County, Pa.—Wheat, though smaller than usual, is healthy, and has not suffered from freezing.

Cecil County, Md.—Wheat sown late, and much of it is barely up.

Talbot County. Md.—Wheat looking well, considering the late sowing and unfavorable condition of the ground.

Baltimore County, Md.—Wheat sown later than usual, but the plant is vigorous and healthy.

Clarke County, Va.—Ten per cent. less wheat sown last fall than in 1868, and it has not attained the usual size at this season, but it is green and healthy and not the least winter-killed.

Madison County, Va.—Wheat was sown late, and in many instances in badly prepared land. The cold weather of November prevented sprouting, though much that was kept back is now coming up. The condition of the crop is not promising.

Buckingham County, Va.—Though the land was not in good tilth, wheat came up very well, and there is now a good stand, though it is not yet sufficiently rooted to withstand severe winter weather.

Highland County, Va.—Wheat and rye look well. The best time for sowing wheat is in the early part of September. Deep-plowed fallow land makes a sure crop; late sowing in corn land is uncertain.

King George County, Va.—Wheat does not show well; it came up late, and has grown very little.

Botetourt County, Va.—Gloomy prospect for wheat, owing to the continued cold, dry fall.

Spottsylvania County, Va.—Wheat presents an average appearance. About one-third more fertilizers were used last fall than in 1868.

Chesterfield County, Va.—Wheat is very late, owing to cool weather in the fall; many fields hardly make a show.

Nelson County, Va.—One-third increase in acreage seeded to wheat; but the appearance of the crop is not as promising as last year at same date.

Surry County, Va.—Very little wheat sown last fall. Peanuts absorb almost all attention now. More rye than usual has been sown, chiefly for pasturage.

Jackson County, N. C.—Wheat is yet safe; now under four inches of snow.

Harnett County, N. C.—Winter grain presents an average appearance, but there is a decided decrease in acreage. An increased quantity of fertilizers has been used.

Tyrrell County, N. C.—Owing to failures in the wheat crop from rust, &c., many farmers have abandoned the culture, and will pay more attention to cotton.

Caswell County, N. C.—In consequence of the unusual amount of rain, the winter wheat is not promising.

Burke County, N. C.—Wheat and rye backward.

Pasquotank County, N. C.—Wheat in fair condition, but with reduced acreage.

Chowan County, N. C.—Wheat has grown slowly, and is backward for the season.

Madison County, N. C.—Winter wheat never looked better in this county.

Stanly County, N. C.—More wheat sown last fall than in 1868, and all small grain is in good condition.

Duplin County, N. C.—Good stands of wheat and rye.

Williamsburg County, S. C.—The damage to wheat the past year from rust has induced some farmers to abandon its culture. Those who have put in crops, prepared their land more thoroughly and planted earlier, experience, in some localities, having demonstrated that early maturity of the crop is the best safeguard against rust. Oats are receiving increased attention as a crop.

Fulton County, Ga.—A good stand of wheat.

Carroll County, Ga.—Farmers are making preparations to plant large crops of corn and oats, a policy that ought to have been adopted long ago.

Crawford County, Ga.—Wheat ground prepared better than usual, with a liberal application of home-made and commercial fertilizers. The crop was sown much earlier than usual, and has been comparatively exempt from the fly.

De Kalb County, Ala.—Our farmers still follow the old plan of sowing wheat after corn, plowing it in with a bull-tongue plow. Guano was tried on a small scale last year with good results.

Coryell County, Texas.—We have never before had such a fine prospect for winter wheat. Season favorable thus far.

Medina County, Texas.—Wheat and rye seeded late.

Red River County, Texas.—Wheat is looking well.

Bell County, Texas.—The high price of cotton, and the many failures of wheat, in consequence of the grasshopper, has lessened the acreage in small grains, and will increase the area in cotton and corn. Wheat looks unpromising on account of defective seed and culture.

Kendall County, Texas.—Season favorable for wheat; cotton will be extensively planted in the spring.

Burnet County, Texas.—Owing to failures of wheat crop for successive years, farmers have reduced their acreage in wheat one-half.

Williamson County, Texas.—Many farmers are abandoning the cultivation of small grains and raising more cotton.

Independence County, Ark.—Winter wheat is suffering from dry, cold weather. The preparation of soil for wheat last fall was more thorough than ever before practiced in this section.

Giles County, Tenn.—Wheat and rye were never more promising, attributable in a great measure to the superior manner in which the soil

was prepared for seeding. A large proportion of the failures in this section is owing to the slovenly mode of preparing the soil and the indifferent after-culture. Some farmers have bought grain drills, and are much pleased with them. Labor-saving machinery is in demand.

Monroe County, Tenn.—Though the fall was unfavorable for seeding a good breadth of wheat was put in, and thus far it is looking well.

Greene County, Tenn.—The early closing of fall weather prevented the sowing of as much wheat as was intended to be put in.

Robertson County, Tenn.—Wheat was well put in, but the early cold retarded growth, and prevented tillering of any consequence.

Putnam County, W. Va.—Season unfavorable for wheat, but it looks tolerably well.

Morgan County, W. Va.—Wheat was put in later than usual, yet it looks well, owing to favorable weather in December.

Braxton County, W. Va.—More than usual attention has been given to the cultivation of small grain. Wheat looks tolerably well; rye still better.

Nicholas County, W. Va.—At least twenty per cent. more wheat sown this season than usual; but the crop is not very promising, owing to dry fall and early freezing.

Jefferson County, W. Va.—Winter grain was put in with more than usual care, but generally late, and is not quite up to an average in appearance. A large area was seeded to rye.

Upshur County, W. Va.—On account of the drought wheat was sown late, and some of it got but little start before the winter set in.

Owen County, Ky.—No weather thus far to injure small grain.

Carroll County, Ky.—Wheat was sown late, and did not get a good start; but the winter has been favorable.

Mead County, Ky.—The usual quantity of wheat sown; but it had not more than peeped through the ground when the cold weather set in; hence it is very backward.

McCracken County, Ky.—About half the winter wheat in this county is well put in; the other half was put in on corn land not in good tilth.

Gallatin County, Ky.—Winter wheat in good condition.

Pettis County, Ky.—Wheat acreage decreased four-tenths, in consequence of large crop and low price of last year.

Vernon County, Mo.—Only a small increase in acreage of winter wheat, for the reason that vegetation was too heavy for plows to turn after the middle of September.

Moniteau County, Mo.—Wheat doing well thus far.

Holt County, Mo.—At least four times more winter wheat sown last fall than in 1868.

Franklin County, Mo.—Winter grain sown in September looks well; that sown late is very unpromising, especially wheat.

St. Francois County, Mo.—Wheat had hardly come up when cold weather set in; consequently it has not tillered much. The wheat put in with the drill looks better.

Pike County, Mo.—Winter grain in promising condition.

Mississippi County, Mo.—Wheat looks well.

Cass County, Mo.—The wheat acreage is double that of any previous year. A good portion of it on new sod, but it does not generally look well.

Stone County, Mo.—Winter grain in good condition.

Howard County, Mo.—Winter grain is looking bad. Barley has received little attention until this season.

Henry County, Mo.—Wheat backward, having been put in late.

Daviess County, Mo.—The winter has been favorable for wheat and rye.

Grundy County, Mo.—Wheat not promising; too much wet, and alternate freezing and thawing.

Stephenson County, Ill.—Owing to the unfavorable fall, much of the rye is scarcely out of the ground.

Union County, Ill.—The dry autumn prevented the wheat from springing up as quickly as usual.

Hancock County, Ill.—Wheat and rye in excellent condition.

Fayette County, Ill.—Less wheat sown last fall than for many years, on account of the low price of the grain. The winter thus far unfavorable.

Madison County, Ill.—The condition of winter wheat is fair, though it is backward and small.

Schuyler County, Ill.—Season unusually favorable for winter wheat. The crop was put in with care, much of the seed drilled in, and the ground well prepared.

Clay County, Ill.—Winter wheat not as promising as usual.

Winnebago County, Ill.—Winter grain was generally sown too late.

Menard County, Ill.—Wheat very promising.

Franklin County, Ill.—Owing to the dry fall, winter grain is not in as good condition as usual.

Brown County, Ind.—Wheat backward, owing to dry fall. About twenty per cent. increase in acreage.

Crawford County, Ind.—Owing to the dry weather, wheat has tillered but little. Rye looks better than wheat, having been sown earlier.

Madison County, Ind.—The season has been hard on winter wheat.

Posey County, Ind.—The dry fall was unfavorable to small grain; some failed to come up.

Warren County, Ind.—Wheat is somewhat backward.

Tippecanoe County, Ind.—Wheat unpromising all over the county, owing to the condition of the ground when sown.

Noble County, Ind.—Wheat unpromising.

Boone County, Ind.—The wheat sown broadcast is, much of it, uprooted by the frost; that drilled in is in better condition.

St. Joseph County, Ind.—Wheat is thin on the ground, owing to defective seed and the Hessian fly. The winter has been favorable thus far.

Martin County, Ind.—Wheat and rye sown late, but both are looking reasonably well.

Washington County, Ind.—Forty per cent. decreased acreage in wheat, and the condition is proportionally worse than last year at same date.

Lorain County, Ohio.—Wheat in average condition.

Lawrence County, Ohio.—Season too wet for wheat.

Wayne County, Ohio.—Some of the wheat was injured by the fly in October and November.

Logan County, Ohio.—Wheat severely injured by heavy frost succeeding the frequent rains in early part of December.

Henry County, Ohio.—Poor prospect for the coming wheat crop.

Coshocton County, Ohio.—Season favorable for wheat.

Lucas County, Ohio.—Wheat has a very small top growth, but is healthy.

Washington County, Ohio.—Wheat and rye very backward.

Wood County, Ohio.—The drought caused many farmers to omit the sowing of ground intended for wheat. Had the land been in condition, the area sown would have been fifty per cent. in excess of last year. The crop does not look as well as usual.

Brown County, Ohio.—Wheat that was sown early looks well.

Champaign County, Ohio.—Wheat acreage decreased because of the high price of labor and the low price of wheat.

Mercer County, Ohio.—Winter grain suffering on account of alternate freezing and thawing.

Livingston County, Mich.—Wheat sown late, and in consequence of the wet cool-weather, has made but little growth.

Lenawee County, Mich.—The fall and winter have been favorable for winter wheat.

Ottawa County, Mich.—Winter wheat is very even on the ground, but short in growth. The low price of this grain is drawing the attention of farmers to the necessity of raising more stock and less wheat.

Cass County, Mich.—The winter wheat is generally slender, but the winter has been favorable.

Muskegon County, Mich.—Not more than half the usual amount of winter wheat sown last fall, and that is not in promising condition.

Calhoun County, Mich.—Wheat has a broad strong leaf, giving evidence of a vigorous root and good preparation. Farmers sow less fallow land and more after barley and corn than formerly.

Douglass County, Wis.—The best wheat lands could not be sown last fall on account of constant wet weather; consequently very little winter wheat was sown, and that on light soils.

Rock County, Wis.—Winter rye very unpromising, owing probably to the immature seed sown.

Appanoose County, Iowa.—Wheat has been covered with snow ever since winter set in, and is thus far in good condition.

Johnson County, Iowa.—The wet season prevented as large a breadth of winter grain being sown as would otherwise have been put in.

Boone County, Iowa.—Winter wheat, rye, and barley have heretofore been almost total failures, and farmers have ceased to experiment in this direction.

Linn County, Kan.—Wheat sown in great breadth and looks well; soil generally in good condition.

Leavenworth County, Kan.—Wheat promising; was put in in fine condition.

Nemaha County, Kan.—Increased breadth of wheat sown; nearly all drilled or plowed in, and mostly put in earlier than usual; the ground was in excellent condition, and the crop is promising.

Atchinson County, Kan.—Prospect of winter grain decidedly good; drilling is considered the best mode of putting in the seed.

Clay County, Kan.—Wheat put in with the drill is superior in almost almost every instance.

Wyandott County, Kan.—The appearance and prospects of winter grain are unusually good.

Franklin County, Kan.—Winter wheat in favorable condition; it was sown earlier than usual, and generally put in with the drill.

Shawnee County, Kans.—All drilled wheat looks better than common. Drilled wheat yields about five bushels to the acre more than that sown broadcast.

San Pete County, Utah.—There is a decreased acreage of winter wheat, and the condition is not so promising as last year.

Ada County, Idaho.—Considerable winter wheat sown, and the crop is promising.

EXTRACTS FROM CORRESPONDENCE.

EXPERIMENTS WITH SEEDS.

Hon. John Bidwell, of Chico, California, makes the following report upon experiments with seeds received from this Department:

Having been favored by the Department with specimens of wheat and other seeds during the year, I hereby acknowledge the obligation under which your kindness has placed me, and present my report of results. The wheat consisted of the following varities: Tappahannock, forty-six and one-half pounds; Rough Chaff, seven and one-half pounds; Talavera, six pounds; Polish wheat, seven and one-half pounds. The annexed table shows the time of sowing, area sown, yield, &c., of the three varieties named:

Variety.	When sown.	Quantity sown.	Area sown.	Yield.
		Pounds.	*Sq. rods.*	*Bushels.*
Tappahannock	Jan. 27, 1869	46½	169. 24	23 223
Rough Chaff	Jan. 27, 1869	7½	40. 02	6 100
Talavera	Jan. 28, 1869	6	18. 80	4. 016

It will be seen that the Tappahannock was sown at the rate of forty-four pounds to the acre, and yielded at the rate of 21.96 bushels to the acre; the Rough Chaff, sown at the rate of thirty pounds to the acre, yielded at the rate of 24.38 bushels to the acre; and the Talavera, sown at the rate of fifty-one pounds to the acre, yielded at the rate of 34.18 bushels to the acre. The Polish wheat was sown about the same time, but, for several reasons, it was not deemed worthy of cultivation here, and therefore was not harvested.

The land used was a sandy loam, exhausted by ten to twelve years of constant cultivation, but a little manure had been unevenly scattered over it and plowed in. The sowing was unavoidably committed to inexperienced hands, hence the wheat was unevenly and too thinly sown. My rule has been never to sow less than sixty pounds, nor more than seventy-five pounds per acre, if sown in December—the average time for putting in wheat in this part of California. The earlier wheat is sown the better after the fall rains have wet the land and rendered possible the setting of the plows in motion. If practicable, then, wheat may be put in in November, when fifty pounds of seed per acre will suffice; the later the sowing the greater should be the quantity of seed per acre. My experience in this locality would suggest the following rules as to quantity of seed and time of sowing: when sown in November, fifty pounds of seed; in December, sixty pounds; in January, seventy pounds; in February, eighty pounds; in March, ninety pounds. The application of these rules to the experiments with the seeds sent from the Department would have produced very different results. The late sowing could not be helped, as the seed came late; the thin sowing had a bad effect, in permitting the weeds to spring up and overtop the wheat. Having started wrong, the drawbacks accumulated to the end of the chapter. Small patches of grain cannot be cut with a header, which is about the only harvesting implement now used in this (the Sacramento) valley. Cradles and sickles are seldom seen or used, and are soon to be numbered, it would seem, among the things that were. The weeds would have prevented the use of cradles, had such a thing been at hand. By dint of good luck a few old sickles were found, and a few old squaws to use them. Owing to the scarcity of hands during last harvest, these native women cut with the sickle and thrashed with sticks the wheat in question. (Even the flail is about obsolete and seldom seen.) Some of these same natives remember, however, how harvesting was done in the first settlement of this valley, dating back more than a quarter of a century—how wheat was cut with sickles by those who were fortunate enough to have such improved implements of agriculture; but in their absence, which was very common, with butcher knives, or scraps of old hoops, or with sticks split so as to form a sharp side or edge with which the dry and brittle straw could be severed. These creatures, always wasteful, were this year aggravatingly so, for they consider the gleanings their perquisites. In conclusion, I must not omit to mention the unfavorable season and consequent partial failure of the wheat crop—it being only about three-fourths of the usual yield. Had it been practicable to have sown these specimens early, say in December; had there been a proper quantity of seed per acre, thereby diminishing the amount of land but multiplying the number of stalks to a given area, which would have kept down the weeds; had the harvesting been carefully done; and, lastly, had the season been but ordinarily propitious, the result would have been widely different, and the following esti-

mate below rather than above the reality, namely: Tappahannock, forty-five bushels; Rough Chaff sixty; Talavera, fifty per acre.

Everything considered, the Tappahannock is, I think, the best of the three kinds. With careful cultivation on our best soils, the yield may go to fifty, and even sixty, bushels per acre. But, while it seems to promise so well, further experiment will be necessary to test its power to resist deterioration in this glowing climate. Some kinds of wheat, very good at first, soon lose their excellence, the grains becoming smaller and starchy. Such was the fate of the Sonora wheat. When first cultivated here it was plump, beautiful, and very productive; but it soon deteriorated, was discarded, and is now almost unknown. I do not allude to what is generally called the Sonora Club Wheat, which stands up and yields well, but makes inferior flour.

My conclusion is that, in the light of the experience just related, the Tappahannock, the Rough Chaff, and the Talavera wheat are a success, especially the first named.

The two varieties of oats—White Schonen, one pint, and Black Swedish, one pint—were received late and sown March 18, too late to expect anything like desirable results. Nevertheless, one kind, the Black Swedish, did very well; the other, only tolerably. I will endeavor to report more fully after next harvest.

The melon seeds sent, to wit: Phinney's Early watermelon; muskmelon—New White Japan, Achapesnorricher melon, Japan melon, and Cassaba melon, came to hand so late that it was a question whether or not to attempt to plant them, in view of the very early and dry spring which was then upon us, and May seemed turned into June. But, selecting a place where they could be reached by irrigation, they were planted on the 24th of May. Some failed to come up, others came up feebly, others were scorched and killed, and all were more or less affected by the hot weather; and this, in spite of irrigation, and contrivances to screen them from the rays of the sun. Had the planting been two or three weeks earlier, this would not have been necessary. This statement is to show that none of the melons named had a fair trial. Early planting was more essential to full development of quality than would have been climate, soil, or any other condition. Those that survived did so almost against hope; but having escaped, they grew slowly, and some became tolerably vigorous. Phinney's Early, said to be a "new variety" of watermelon, grew and produced fruit sufficiently to enable me to say that I do not deem it a very good kind. The New White Japan was admirable. It was somewhat longer than the common cantaloupe, and would average a little larger, and I am at a loss whether to style it a large cantaloupe or small muskmelon. Its quality, however, was excellent, and it was new; for it was different from any of the kinds in common use. Its excellence had the peculiarity of striking uniformity; they all came to the standard, and such a thing as a poor one was not found during their season, which was short in comparison with other melons, as they lasted but two or three weeks. I have often seen cantaloupes sweeter, but these were sweet enough, and never disappointed me.

The next in order was the Achapesnorricher melon, "a new and very superior green-fleshed muskmelon, from the Ionian Islands, represented as being very hardy," using the labels from the Agricultural Department. In planting, I endeavored to keep the labels correctly; and if so, then this was not a "green-fleshed" melon, but a very round, rough-ribbed, thick and solid yellow orange-fleshed melon. It never became soft like other varieties of muskmelons, and at last decayed without ripening to softness. This may not have been its appropriate climate, and, upon the whole, I did not have for it special estimation. The Japan melon did not amount to anything worthy of record. If the two last named should in the future develop into importance, I will report the fact. I must conclude with the Cassaba melon, and have purposely kept the best for the last. This is a green-fleshed muskmelon, not remarkable for size. The rind, though not exactly green, does not change to yellow. The flesh is thick, soft, and juicy, but to properly describe it, is more than I will attempt. Melons may be more saccharine, but this is delicious, and, as nearly as possible, perhaps completely, defines the word *delicious!* and I would not exchange it for any melon ever before seen, or for all other melons combined. If we have mixed the labels, this may be the kind from the "Ionian Islands," and not "from Smyrna." The former, (Achapesnorricher,) as represented, *was* a "green-fleshed" melon, and the seeds were considered very precious, their cost being stated to have been $1 20 per pound in gold. Let the name be right or wrong, it is not important for my present purpose. Time will enable us to correct error in name, if any there be. This melon absolutely caps the climax, and leaves nothing to be desired.

William E. Baker, of Ickesburg, Perry County, Pennsylvania, makes the following report of experiments with seeds received from the Department:

Esteemed varieties, which were formerly our preference, were planted with those received from the Department, that we might have a known standard for comparison. Varieties not originally received from the Department are in *italics;* those from the Department are marked with a †.

†Fulmer's Forcing, †Early China, †Large White Kidney, *Valentine*, and *Giant Wax* beans were planted. The first and second prolific, but rough pods. †Large White Kidney moderately prolific, good for winter use, but not equal to *small White Bush* bean, grown here. *Valentine* is decidedly the best bush-bean for cooking in the pod which we have tried. *Giant Wax* has no equal among pole beans. †Long Smooth Blood beet, †Dwarf Blood beet, †Carter's Warden Mangel Wurzel, and †Vilmorin's Improved sugar-beets grow well, and are of ordinary quality. †Pine Apple Short Top beet, received in 1868, and †New Pine Apple Short Top, received in 1869, appear to be identical, and are the *ne plus ultra* among table beets. They are early, tender, handsome, well flavored, large enough, and of beautiful shape. The earliest planted are good any time during the summer, the fall, or the next winter—always tender—never stringy. †Snow's White broccoli proved to be a bushy, headless *cabbage plant*, three feet high, leaves long, slender, lyre form. †American Drumhead Savoy Cabbage is the best of its class. †Large Late Hardy Winter Drumhead Savoy cabbage has a larger name than head. †New Sprouting Dwarf Ulm Savoy cabbage is of no account with us. Drumhead Savoy cabbage is similar to the American Drumhead Savoy, but not quite as exempt from rot. †Superfine Early cabbage is the best early variety that we have yet tried. †Large Brunswick Short Stem cabbage is pretty good, but liable to rot. †Schweinfurt Quintal cabbage is early, large, pretty good, but very liable to rot and fall from the stem. †Large Late Drumhead is the best winter cabbage. †Early Short French carrot, as received from the Department, is identical with the variety we have grown for years, and is the best yet tried. †Nantes Large Stump-rooted carrot is larger, but not equal for the table. †Dwarf White Solid celery is very good.

Sweet corn was ready for the table in the following order: †Narraganset, †Brill's Early Extra, †Burr's Mammoth, *Darling's Early*, †Stowell's Sweet corn, and †Boston Late Sweet corn. Narraganset is good but small; Brill's Early Extra no larger and scarcely as good; Burr's Mammoth large and good; Stowell's is the very best in quality; Darling's Early is hardy, good, prolific, and would be my selection if I could have but one variety.

†Long Purple egg plant produces smaller fruit than the *Large Purple*, but seems to be eminently hardy, quite early, and produces more fruit than the *Large Purple*. †Large Green Curled Ruffed endive grows luxuriantly and is pretty good. †Large White cabbage or Maderia lettuce has nothing to recommend it. †Ivery's Nonesuch lettuce is tender, and, from its upright growth, readily gathered while quite young. †Victoria lettuce is small, tender, and this season (a favorable one) made nice heads; it is soft and oily, rather than crisp and juicy. *Felton's India Head lettuce* is the best we have tried. †Covent Garden Pickling, †Nuneham Park, and †Large Maderia onions were planted, for sets, with *Silver Skin* and *Yellow Strasburg*, Covent Garden Pickling, and †Nuneham Park made quite small sets; †Large Maderia was quite late and grew larger, but the *Silver Skin* and *Yellow Strasburg* made quite the largest sets, and ripened earlier.

The †Student parsnip is *best*, but much smaller than the *Large Sugar*, which is also very good, but different in flavor, being more sugary, and having more of the "*native parsnip*" taste. †Tom Thumb peas have nothing to recommend them but their dwarf habit. †Philadelphia Extra Early peas are the best early variety yet tried. Hubbard Squash has no equal, unless it be another of the same vine. I did raise one vine and one squash on it; all others were destroyed by the squash bug, despite the most persevering efforts; about the first of September, while examining my vines, I found on the vine, at the base of several leaves, white, footless, fat, greasy-looking grubs, the largest of which were about one inch long. These I cut out carefully, and barely succeeded in saving part of my vine and one squash. All these grubs were on the vine at the base of the footstalks, (petioles.)

†Cedar Hill tomato is early and prolific, rather disposed to be wrinkled and ill-shaped, and not of as good quality as the †Tilden or *Maupay*. The Maupay is the most solid, middling early, good-flavored, and rather smooth, and keeps longer than any other known to me. The †Tilden is very smooth, solid, of good flavor, very prolific; the vine is very healthy, and altogether it is unsurpassed. †Carter's Imperial Hardy Purple Top Swede turnip I sowed as a common turnip, (*B. rapa*,) and they are now under the snow and as thick as my little finger. The name (above) did not, to me, suggest a ruta baga, (*B. campestris*.)

The Excelsior oats are full ten days earlier than the common varieties. When they are threshed I will report the yield.

York County, Me.—The Arnautka spring wheat yielded eighteen bushels to the acre, four bushels better than any old seed. The Red Mediterranean winter wheat was sown September first in drills, four inches deep; it came up well, and did not winter-kill; product, fifteen bushels to the acre. The quart of Probstier barley returned twenty-four fold. I sowed one quart Schonen oats, and one of Black Norway; also, two

bushels of White Swedish oats. Reduced to acres, the product was: Norway, twenty-eight bushels, of thirty-two pounds; German, thirty-two bushels, of thirty-four pounds; Swedish, thirty-five bushels, of thirty-eight pounds. I have grown four crops of Swedish oats, each of which has been satisfactory. The several varieties of turnips have done well, yet none have excelled the Purple Top. The plant called kohl rabi grew to weigh ten pounds or more, and has attracted considerable attention. Last year I sowed one quart of Alsike clover seed; it grew to the height of three feet or more, with many branches, and has long and strong roots.

Alexander, Me.—Three pounds of the Arnautka spring wheat, received from the Department of Agriculture, was sown 26th of May, in twelve drills sixty feet long, about fifteen inches between the drills. Put on about two pailfuls of unleached wood ashes. Potatoes were the preceding crop, lightly manured. Threshed and cleaned up thirty-six and one-fourth pounds of nice plump wheat. If sown thinner, the crop would probably have been one-third larger.

Orleans County, Vt.—The Arnautka spring wheat, received from the Department, proved as early as any variety raised here; hardy and free from disease. Three quarts sown yielded about two bushels of nice wheat; the threshers called it the best they had seen. The Somerset oats from England ripened ten days earlier than other varieties here, but the birds shelled the grain, so that I did not get more than one-half bushel from a quart sown; but they are very heavy. The white Schonen oats ripened August 15, yielding well, and they are a desirable grain. The Black Swedish oats ripened September 12, which was very late. The Saxonian and Probstier barley are two rowed varieties, and are just alike while growing, so I have put them together; got two bushels from three quarts; very heavy grain.

Yields of grain in this county: Emery Cook, of Glover, raised one hundred and forty bushels of wheat on four acres. Thomas Baker, of Barton, raised one hundred and seventeen bushels of wheat on four acres. Willard Chamberlain raised twenty-one bushels from one and one-half bushels, sown on three-fourths of an acre. Horatio Nye raised forty-three bushels from two bushels of seed. E. H. and L. H. Nye, of Glover, raised forty-four bushels from two and a fourth bushels of seed. J. C. Chapman, of Barton, raised three hundred bushels of Norway oats from seven bushels of seed, and part of them at the rate of one hundred bushels per acre. Perley Hill, of Irasburg, raised four hundred bushels ears of corn from three acres.

Essex County, N. J.—Of all the varieties of turnip seed sent me last spring, the only kind which succeeded at all was the White Flat Dutch or White Strap Leaf. All the Swedish or yellow varieties proved complete failures, probably owing to the severe and protracted drought of August and September. My general experience is that the Red and White Flat Dutch or Strap Leaf are the only reliable kinds for this soil or climate, as I have never had any success with other kinds, though I have taken every pains in preparing the soil.

Washington County, Pa.—Mr. C——— sowed two and one-half quarts of Tappahannock wheat, and threshed sixty-eight pounds; not quite a bushel by measure. I sowed one quart of White Schonen oats, and harvested one and one-quarter bushel of grain, at the rate of sixty-four bushels per acre.

Nelson County, Va.—The Tappahannock wheat, introduced from your Department, seems well adapted to our climate, and gives general satisfaction. Should it continue to maintain its present standard, this

article alone will be worth more to our country than the cost of the Agricultural Department.

Randolph County, N. C.—The peck of Tappahannock wheat forwarded to my address by the Department in the fall of 1868 I gave to a farmer for experiment as directed, and he reports results as follows: "Sowed one peck of Tappahannock wheat on one-fourth of an acre of thin land (not manured) about the first of November; it grew finely, and was ripe on the 10th of June. Threshed it at the usual time; it yielded three bushels of excellent wheat, weighing sixty-seven pounds to the bushel."

Cherokee County, Ga.—W. Grisham, one of my assistant reporters, makes the following report of seeds received from the Department: Imperial round turnip, good, but not excellent; Fosterton Hybrid turnip, not desirable; Tipped Scarlet oval radish, excellent. Early Bassano beet, good; Carter's Warden Orange Globe mangel wurzel, good; New Pineapple beet, good; Imperial Sugar beet, very good; Kemp's Incomparable cabbage, Late Hardy Winter Drumhead Savoy, and the Jersey Wakefield cabbage, not suited to this locality. The Student parsnip, the Selected Scarlet carrot, and the James Scarlet carrot did not vegetate. Yokohama squash failed on account of drought. Early China beans, the Large White Kidney, and the Large Pale Yellow beans, very good. Carter's Early Prolific peas, excellent.

De Kalb County, Ala.—The Tappahannock wheat, sent me by the Department three years ago, has succeeded well. I am now engaging my next crop for seed. I sold out my last crop for seed in the fall, at $2, when our common wheat was only $1 25 per bushel. Guano tried on a small scale last year, broadcast on wheat, with good results.

Kendall County, Texas.—I planted, with great care, on the 7th of last December, a peck of Tappahannock wheat received from the Department. It came up beautifully and luxuriantly, but in the latter part of February, that which was not devoured by the grasshoppers was destroyed by the rust. The ramie also was tried, but is a failure in this county; it seemed to do better among weeds and grass than in clean and well cultivated patches. Of the garden seeds, the Drumhead Savoy cabbage beats Kemp's Incomparable; the Early York is also very good.

Marion County, Tenn.—Of the seeds received from the Department, Carter's First Crop pea, sown first of May, produced pods in one month; yield moderate. Advance pea, planted first of May, yielded pods in five weeks; yield heavy; pea sweet, tender, and large; a fine variety. Student parsnip is a fine variety. Deware's Fine Dark beet is excellent; sweet, tender, and prolific. Carter's Early cabbage produces well; white hard head, very good. Every indication shows the Short Stem cauliflower to be a fine variety. Owing to the lateness of the planting and the excessive dry summer, none of these seeds had a fair test.

Monroe County, Tenn.—The following are the results of experiments with seeds received from the Department: The Early Nocera and the White Lisbon onion were planted April 1st in beds well prepared and manured, and though the season was unfavorable both kinds grew finely, many of them large enough for table use. I consider them excellent. Phinney's Early, Black Spanish, and the Long Island watermelon were planted 16th of April; fruited early and profusely. The melons were rather small, but the meat was as fine as I ever saw. Phinney's is the best. The Early Bassano beet was planted 1st of April in well-manured beds; an early and good variety. Bossin lettuce did well, producing fine large heads, which remained tender later than any variety I have cultivated. Sandringham Superb White celery failed to come up; and of the True Hubbard squash, insects destroyed every plant in about

three weeks after they came up. McLane's Epicurean and Dunnit's First Early peas were both good, the latter first-rate, very prolific. Large late, hardy Winter Drumhead Savoy I consider of but little value—not a good head among them. The Vaugirard Winter Drumhead cabbage produced a good crop for the season; early and hardy; a good variety. Carter's Champion broccoli grew finely, and is very nice. Early Narraganset Sweet corn, planted April 12, did not produce a single well-matured ear, though planted in a good soil and cultivated. The season was too cold and backward for it. Cedar Hill tomato is a large and good variety; fruits early, and is very nice. Of the Student parsnip, not a seed germinated. The Hollow Crown or Sugar parsnip came up well and produced a good crop—a valuable accession. Long Surry and James's Scarlet carrot were planted 26th of April in a good soil, though not manured; both kinds did well for the dry season; one measured thirteen inches in circumference. Planted the Spanish turnip in ridges, with some care, sowing at two different times; few came up; too dry and hot.

Nicholas County, W. Va.—The Talavera wheat, one peck, sent me in October, 1868, was carefully sown as soon as received. It grew very finely, heavy strawed, but the midge nearly destroyed it. It is a large, tall wheat, too late for this climate.

Stone County, Mo.—From the Tappahannock wheat sent me last year I harvested a little over two bushels, which was again sowed in September last, and it looks well at this time, (December 25th.) The Black Swedish oats did well; from a quart I raised a bushel. The White Schonen oats did better; from a quart I raised one bushel and a peck. I will sow them again and report the result.

Cuyahoga County, Ohio.—Six quarts of Excelsior oats, received from the Department last spring, produced three and a half bushels, weighing forty-two pounds to the bushel.

Trumbull County, Ohio.—Five quarts of the Excelsior oats sent out by the Department produced two and a half bushels, forty-two pounds to the bushel. They grew splendidly. The Arnautka spring wheat grew and headed well, but it did not fill out.

Fond du Lac County, Wis.—The peck of Russian spring wheat received from the Department resembles in every particular a variety introduced here thirteen years ago, known as the Labrador wheat. It was condemned by millers as being too hard, and more like the hard portion of a kernel of corn than wheat.

I sowed the peck on one-eighth of an acre of ground, and harvested two and a quarter bushels, besides wasting at least four quarts that were scattered in adjoining wheat and fallen to the ground. Full yield, nineteen bushels per acre. The seed was very dark-colored, but at least one-third of the product is quite white and soft. It is my opinion that the next crop will be quite soft. It is a very hardy variety, but rather inclined to fall.

Only a few of the Danvers onion seed came up, but enough to prove them good for this locality. The Connecticut Red onion yielded at the rate of nine hundred and sixty bushels per acre.

Cherokee County, Iowa.—The Arnautka spring wheat received from the Department yielded nearly two bushels from four quarts. The season was rather too wet for it.

Lassen County, Cal.—The peck of Tappahannock wheat sent me yielded three bushels, and the farmer who sowed it says that one-half of the seed rotted. One pound of the Swedish oats yielded twenty-four pounds.

SWEET POTATOES, POULTRY, ETC., IN NEW JERSEY.

Salem County, N. J.—Our sweet potato crop was large, and the returns throughout that section of our county adapted to the culture of this crop have averaged about one hundred dollars per acre. I know of one farmer that leased sixteen acres, he furnishing the team and manure, and the lessees paid him one thousand three hundred dollars clear of all labor and other expense. One small farmer, the owner of twenty acres of superior truck land, not counting his own labor or the expenses of raising and marketing his crop of sweet potatoes, realized the sum of three thousand dollars therefrom.

Poultry is an item now with us, and there are cases in our county where the good housewife and her girls have realized over five hundred dollars in cash for their poultry. Owing to railroad facilities, milk, cream, and butter can now be sent to the Philadelphia market within two hours, and the returns therefrom to those who have made this "item" of produce are quite large. Three first-class cows, well cared for, will furnish milk, cream, and butter for a family of seven persons, and will, in addition, furnish for market a surplus of more than two hundred dollars in money. Land is at this time rather dull of sale, but wherever there is a good farm offered at public sale, a choice and well-cultivated tract, there are good bidders. One hundred and fifty dollars and upward per acre is not considered out of the way for property of this description. Stock is not high, but there is a fair demand for it. Let a good horse be heard of that can trot a mile in three or three and a half minutes, or is a superior roadster without such speed, and his owner will find no difficulty in obtaining a purchaser at a high figure. The same rule applies to an extra pair of mules, oxen, or a first-class cow.

CATTLE DISEASE IN MONROE COUNTY, N. Y.

Monroe County, N. Y.—The cattle disease reported as existing in this county has now almost, if not entirely, disappeared. The disease commences with small pustules between the fetlock and hoof, which increase in size till they break and a thick matter runs from them, and for some time afterward there remains a running sore. These pustules continue to spread toward the body, and finally to the udder, and may cause a cow to give bloody milk—the same as any other sore upon this part. The pustules, however, soon heal, and, even if nothing is done to the animal, cause but little loss in flesh, and only for a short time a diminution in the quantity of milk.

Many persons think this the old cow-pox, but most people attribute it to the work of some insect, in connection with the unusually cold and wet autumn. It appears to be somewhat worse when cattle are pastured upon low, wet land, and exposed to muddy places to lie down upon at night, and less severe when cattle are stabled.

The remedy is very simple. A mixture, in about equal proportions, of sulphur and lard rubbed upon the pustules as they appear, and one or two doses of sulphur given inwardly, has always in a short time effected a cure.

I doubt if this disease has in any instance proved fatal to an animal. Some cows were said to have died with it, but, on inquiry, I have always found that they had some other disease in connection with it.

WHEAT CULTURE IN LEBANON COUNTY, PA.

Lebanon County, Pa.—The limestone region of this county averages about twenty-one bushels of wheat per acre; gravel and slate region about fifteen bushels per acre. Earliest sown wheat (sown first week in September) was best, drilled wheat averaged on best farms twenty-five bushels to the acre; better by two bushels to the acre than hand-sown. Land early prepared for sowing and allowed to settle well before seeding is believed by our best farmers to be a great advantage over sowing in loose, fresh-plowed ground, especially in dry falls.

COTTON CULTURE IN NORTH CAROLINA.

Pasquotank County, N. C.—Cotton is a staple crop in this section of North Carolina, and good farmers have realized over $60 per acre, clear profit, on their crop of this year. Added to this, the land in this county, unlike anywhere else, improves rapidly from raising cotton upon it; and the same land may be cultivated in cotton for thirty or fifty years in succession, and will get richer all the time. The same is nearly true in regard to corn, if pease are sown at the last working.

PEANUTS IN NORTH CAROLINA.

Beaufort County, N. C.—One farmer had five hundred acres in peanuts, but the season was too dry; yield about thirty bushels per acre. Last year the yield was about sixty bushels.

FERTILIZERS, FREE LABOR, ETC., IN GEORGIA.

Stewart County, Ga.—The sandy loams, especially the past season, were decidedly unfavorable for wheat, a great deal of the land sown not yielding more than two bushels per acre. Experiments in this county on a small scale, with land liberally fertilized and carefully prepared, have yielded as much as twenty-seven bushels per acre, (sandy loam,) worth $60 75 gross value. It was believed, however, that an acre of the same land so fertilized would have yielded seven hundred and fifty pounds lint cotton, worth $187 50, more than twice the value of the wheat crop. A given amount of labor will produce at least fifty per cent. more in value when applied to the production of cotton than when devoted to the raising of any variety of provision crop, (sweet potatoes perhaps excepted.) Yet our planters are rapidly becoming convinced that net progress in wealth is increased by appropriating a sufficient amount of land space and labor to the production of provisions enough for the stock and laborers employed on each plantation. Doubtless that policy will ultimately be adopted.

A gentleman of this county by the name of Hannon, assisted only by his wife, who also attended to her domestic affairs, cultivated forty acres of land, making eleven bales of cotton, eight barrels of sirup, and one hundred and fifty bushels of corn. He employed no freedmen. This is a striking illustration of what white labor can accomplish in this latitude. It illustrates also the low market value of the lands of this country compared with the money value of the crops they produce. Hannon had, at the opening of the year, only a few bushels of corn, one mule, and no money; yet he bought his family supplies on time, which he paid after the sale of his crop. He also bought and paid for the land he cultivated, at $15 per acre, out of the proceeds of his crop, and had means enough

left to buy as much more. What country can present a parallel to this? In what other country can a man make a net profit sufficient to buy twice as much land as he cultivates?

CORK TREE IN MISSISSIPPI.

Wayne County, Miss.—In the winter of 1859 I received a small tin case of Spanish cork-oak acorns from the Agricultural Department. I planted them, and all came up. One of the trees, now the largest, was planted in a flower garden, in the midst of a group of rose-bushes, and has grown to be about thirteen feet high, and the trunk is eleven inches in diameter. In growth and appearance it is much like the live oak, being an evergreen. The cork around the body is more than an inch thick. My land is poor, consisting of a sandy soil with clay subsoil—in short, the sterile pine land of East Mississippi, sixty miles north of Mobile, Alabama. This will account for the slow growth of my cork oaks. I have no doubt that in the region bordering on the Gulf the cork oak would succeed admirably.

LABOR IN DE SOTO COUNTY, MISS.

De Soto County, Miss.—The good crop and remunerative price of cotton in this county the past year will tend to lessen all other crops and increase the acreage of that great staple the coming year. Our negro laborers have made money, and begin the new year generally upon the same farms, with brighter hopes, and, I think, will do better than ever before. We have not laborers enough, and great efforts are being made to bring immigrants this way. A considerable number of Swedes, Irish, and Englishmen have recently come into this country, while our own people from the Northern and Atlantic States are rapidly coming hither, and our waste places will soon be occupied by intelligent farmers and mechanics.

FERTILIZERS, PEANUTS, ETC., IN MISSISSIPPI.

Clarke County, Miss.—I find but two articles to report on for December, corn and potatoes. Last spring I subsoiled one-seventh of an acre very poor land, planted it in corn, putting one table-spoonful of Pacific guano to each hill. From this I gathered eight bushels of good corn, notwithstanding the very dry and hot weather at the time it was silking and tasseling. I find that the *Arachis*, (peanut,) especially the large red kind, which I have named *Arachis erecta*, is better to raise for stock in this section of the country than corn. The poorest land here will produce fifty bushels to the acre and one ton of haulm, which horses, cows, and sheep are very fond of; in a word, a horse will fatten on it without corn.

LABOR IN LOUISIANA.

St. Tammany Parish, La.—Colored laborers have done well under the contract system. Most farmers pay one-half at the end of each month, the balance at the time the crops are gathered. Colored men who have small farms in charge show a marked improvement in stock.

LABOR IN CARROLL PARISH, LA.

Carroll Parish, La.—Everything and everybody are astir for another cotton and corn crop. Most every one is easy as regards money mat-

ters, but labor is wanted. If we could get reliable labor we could increase our acreage in cotton and corn at least twenty-five or thirty per cent. the coming season, having everything necessary for so doing, with that important exception.

SUGAR-CANE IN WASHINGTON PARISH, LA.

Washington Parish, La.—Our farmers are turning their attention to sugar-cane, as it pays here better than cotton or any other crop. All the molasses made this year for sale has been sold in the parish.

CROPS IN FAYETTE COUNTY, TEXAS.

Fayette County, Texas.—There is a great lack of diversity of crops in our county. While our climate and soil are adapted to a great many products, cotton absorbs all the attention, and we are fast drifting into the fashion existing before the war of raising cotton and buying everything else. The ramie plant has the past year made a splendid growth, but no one is paying any attention to its cultivation as an article of commerce. The only product besides cotton that is exciting any attention is the tropical sugar-cane, (ribbon,) which it is believed can be successfully cultivated in our county and manufactured with the sorghum machinery; at least, the experiment will be made soon.

SUGAR, COTTON, ETC., IN CAMERON COUNTY, TEXAS.

Cameron County, Texas.—Many farmers are planting increased quantities of sugar-cane. The produce heretofore, for some years back, has been sold in the cane for the Mexicans to eat or chew. Next season we have hopes of making sugar. Cotton has had, during 1869, quite a furor. The product of this section will exceed three hundred bales; in 1868 the crop was about twenty bales; in 1870, from present appearances, there will be at least one thousand bales made. We have no immigration here, and the Mexicans are difficult to start at anything new. Cotton they will plant if they can contract in advance for the delivery of the staple in the seed. There will be a couple of gins put up for next year's crop. Potatoes do well, but not enough raised for the home demand.

THE RAMIE IN TEXAS.

Bexar County, Texas.—The ramie has flourished this season beyond all expectation. We believe the ramie is indigenous with us; a plant is found growing wild in our river bottoms as much like it in shape of leaf, root, stalk, and fiber as two grains of corn or beans are alike. If the two are mixed together no man can distinguish them, not even in preparing the lint.

RESOURCES OF SULLIVAN COUNTY, TENNESSEE.

Sullivan County, Tenn.—This is a good time and place for northern capitalists to invest their money in the different branches of manufactures. A woolen mill for custom work was started in an adjoining county last summer, and the proprietors were surprised at the liberal patronage they received; in fact, they have been unable to do all the work they have been called upon to do. We have any amount of the

best iron ore, which should be made into forks, shovels, axes, and tools generally used by the farmers, without freighting them from other sections; indeed, we have the raw material to make any and all the implements used by the farmers, which we hope will soon be developed and utilized.

COTTON IN MIDDLE TENNESSEE.

Rutherford County, Tenn.—Cotton has now been gathered, and the crop is found to be not more than forty-five hundredths of an average crop. Cotton has been a failure throughout Middle Tennessee the yield being much less than for twenty-five years past. Our winters are becoming more severe, and of longer duration. The springs are later, and the autumn frosts come earlier. Droughts are more severe; all of which is directly attributable to the destruction of our forests. A good cotton season is no longer the rule, but the exception.

LABOR IN GIBSON COUNTY, TENNESSEE.

Gibson County, Tenn.—Labor is very scarce and inefficient. Five thousand more laborers could get employment in this county at fifteen dollars per month.

CROPS OF JEFFERSON COUNTY, WEST VIRGINIA.

Jefferson County, W. Va.—I make the following estimates of the agricultural products of this county for the present year. The aggregate value is above that of 1868. The yield of wheat and corn was larger, but the price is below that of last year.

Name of product.	Amount.	Number of acres.	Yield per acre.	Average price.	Total value.
Indian corn.....bushels..	297,750	19,800	15	$0 65	$193,537 50
Wheat.....do....	389,760	27,840	14	1 05	409,248 00
Rye.....do....	12,003	968	12.4	90	10,802 70
Oats.....do....	51,999	4,466	20.6	60	31,199 40
Buckwheat.....do....	700	70	10	85	595 00
Beans.....do....	72	6	12	2 50	180 00
Turnips.....do....	500	10	50	65	325 00
Potatoes.....do....	23,600	400	59	75	17,700 00
Potatoes, (sweet).....do....	80	2	40	1 50	420 00
Sorghum.....gallons..	1,600	40	40	1 05	1,680 00
Wine.....do....	600	8	75	2 10	1,260 00
Leaf tobacco.....pounds..	1,400	7	200	11	154 00
Hay.....tons..	9,532	6,809	1.4	14 00	133,448 00
Total.....	.....	60,426	.....	.....	800,249 60

Tyler County, W. Va.—As a general rule, land is more subject to freezing and thawing between the parallels of latitude of Pittsburg and Cincinnati than north of the former or south of the latter. Hence it is of more importance that the wheat drill be used between those parallels than at the north, where the snow remains longer to protect the tender growth, or farther south where the frosts are not so apt to injure it. But too little is observed and practiced of what experience has taught, that every grain of wheat should be planted at a proper and even depth in all latitudes where it is grown. The drill does this work the best. Flat lands must be drained; most lands must be manured; none too often plowed.

SORGHUM IN MORROW COUNTY, OHIO.

Morrow County, Ohio.—A very small amount of sorghum is raised in this county compared with the crop of a few years ago. The reasons are, poor seed, carelessness in planting and cultivating, and a disgust among farmers for the poor, tarry molasses made for them. A few of us have tried to encourage the cultivation of this product by introducing machinery suitable for manufacturing. D. B. Neal, of this place, has invented a series of pans, defecators, &c., so that a good commercial article can be made with profit. The writer has molasses on hand of his own make that will compare favorably with the best of sirups.

TEXAS CATTLE IN KANSAS.

Cherokee County, Kans.—Immense droves of Texas cattle are arriving in and passing through our county. They have lost eight per cent. of the cattle on wintering them to January 1; cattle arrive poor and thin, unused to cold climate, too wild to nurse, will not eat corn, and cannot endure the severe weather.

STATISTICS OF ADA COUNTY, IDAHO.

Ada County, Idaho.—In referring to the records of the United States Land Office, I find that only 137 homesteads and 428 pre-emption claims have as yet been filed, (ninety per cent. of which are located in this county,) but it may be safely estimated that over 200,000 acres have been inclosed and are under cultivation in this county.

Seven threshing machines have been doing all the threshing in this county during the season, and from the reports of their operations the following figures will show the grain crop of 1869: In Boise Valley, 207,784 bushels; Weaver Valley, 15,000 bushels; in Payette Valley, 10,000—total, 232,784. This amount can be safely classified as follows: Three-eighths wheat, two-eighths oats, two-eighths barley, and one-eighth rye. In giving the total value of the grain crop for 1869, I quote the average price paid by the mill owners at this place as follows: Wheat, 8,729 bushels, at $2 25, $196,411; oats, 58,196 bushels, at 90 cents, $52,376 40; barley, 58,196 bushels, at $1 20, $69,835; rye, 29,098 bushels, at $1 40, $40,737 20—total, in coin rates, $559,359 60.

The estimated yield per acre varies from eighteen to forty bushels, depending a great deal on locations and opportunities for irrigation. Had not the grasshoppers visited the country last season the crops would have been at least one-third larger. In many instances the grain was prematurely harvested, and in some instances it did not get its growth. The soil and climate do not seem favorable for Indian corn, as but little was raised last year, and that which I have examined bears no comparison with the corn raised in the Middle States.

The potato crop averaged one hundred and twenty-five bushels per acre, but as the supply by far exceeds the demand it is not looked upon as worth close attention, and many acres are left in the ground for hogs or feed for other stock, or placed in cellars, or covered up in the fields, without an attempt to estimate the quantity. Mr. Clayton, a farmer on Crane's Gulch near this city, informs me that he planted last season three pounds of Early Rose, which yielded three hundred and twenty-five pounds, and three hundred pounds Goodrich, yielding twelve thousand pounds; also ninety-six sweet-potato plants, which yielded six hundred pounds; he also informs me that he, in person, harvested a row of Good-

rich, seventy feet long, containing fifty-two hills with two eyes planted in each hill, which yielded nine hundred pounds. From this you can see that if potato-raising was made a specialty in this Territory, with a reasonable market, or even cheap freighting facilities, it would be very remunerative.

STOCK IN DEER LODGE COUNTY, MONTANA.

Deer Lodge County, Montana.—This is eminently a grazing and stock-raising county, in proof of which I will give a few *facts*. First. The beeves now in the shops of this town are *too fat* to be good beef, being almost as much tallow as meat. Second. These beeves were driven in off the range, (or prairie,) and butchered, and never were fed in their lives. Third. Two-year olds weigh net from 600 to 700 pounds; three-year olds weigh net from 850 to 1,000 pounds; four-year olds weigh from 1,000 to 1,200 pounds net, and beef of all sizes does not lose more than 38½ per cent. in dressing.

SORGHUM IN ARIZONA.

Pah-Ute County, Arizona.—Our cane crop is now pretty generally harvested, yielding an average of 175 gallons of molasses to the acre; the best yield being 225 gallons to the acre, grown by R. I. Cutler and E. Twitchel. B. Roberts produced from 14 rods of cane 45 gallons of molasses.

COTTON AS A SURPLUS CROP.

The folly of planting all cotton, and buying all farm supplies, was exhibited on an extensive scale before the war, and has been abundantly exemplified since: 1. It is a precarious dependence; it is carrying an entire stock of very fragile eggs in one basket over exceedingly rugged roads. 2. It involves heavy expenses for transportation and commissions on bulky supplies for men and animals of the farm. 3. It prevents the adoption of any system of rotation and the most economic means of fertilization. It is a folly that in 1866 and 1867 plunged thousands of struggling planters into utter bankruptcy.

The wisdom of the opposite course is well illustrated by the following extract from a letter written by a representative of a very large class, who found themselves at "the surrender" without money or a business, or the means of living—in this case a man with a large family of small children, Calvin C. Jones, of Wetumpka, Alabama:

I will now give you the history of my proceedings from the surrender to the present time. At the surrender I had ninety dollars in hard money. There were ten of us in family, myself, wife, and eight children. I had no provisions, but had two horses and one hundred and sixty acres of poor pine land—plantation gone down. I went to work for what we could eat, as it was too late in the year to try to make a crop. The 1st of January, 1866, I went to work to make a crop. I took my hard money and bought provisions with it, and planted all my land, about fifty acres, in corn and pease. My neighbors wanted to know why I did not plant cotton; they said they could raise cotton enough on one acre to buy as much as would grow on five. I told them that the first thing with me was something to eat and then I would raise some cotton. It proved to be a bad crop year, but I raised corn and pease enough to make my meat and to do me for the year 1867. I then planted about half my land in cotton and the balance in corn and pease. I made five bales of cotton, and corn and pease and meat enough to do me for the year 1868. I then sold my poor land for $600, in three payments, and bought a plantation on the Coosa River, ten miles above We-

tumpka, for which I promised $2,000 in two payments. I and my children went to work; myself, and one son big enough to plow, and four small ones not large enough to plow, were my force. We made 400 bushels of corn, and $1,400 worth of cotton. I had corn, pease and meat to do me for the year 1869. My eldest son quit me and went to work for himself. I had one above eleven years of age and put him to the plow, and we have this year made 11½ bales of cotton, 300 bushels of corn, 300 bushels of oats, 55 bushels of wheat, and some potatoes, and 1,600 pounds of pork. During the last five years I have lost four head of horses; still I have not bonded any cotton. My neighbors that went to making cotton to buy corn and meat with are still at it, and they are just one year behind. They have to sell their cotton before they make it at ten or twelve cents per pound, in order to buy meat and bread, and just as long as men pursue that course they will always be behind. I have not worked any freedmen at all, and I think I came out best, for those who do work them in this neighborhood generally come out losers, with difficulties and lawsuits. During the five years since the surrender I have not used any manures, as my means have been limited. If everybody, both white and black, would go to raising their own corn and meat at home we would be a happy people.

THE MICHIGAN FRUIT REGION.

Henry S. Clubb, publisher of the Grand Haven Herald, a journal published in the fruit region of Michigan, furnishes the following facts:

The "Michigan fruit region," popularly so called, extends the whole length of the east shore of Lake Michigan. The peach belt may be said to vary in width from five to twenty-five miles, and its length is about 225 miles. Taking ten miles as its average width, it comprises an area of 2,250 square miles. Estimating that one-third of this area is high enough for the successful culture of the peach and the grape, there are 750 sections, or 480,000 acres of land, capable of producing these popular fruits for market. Of this tract it is probable that not more than 10,000 acres are yet planted to peaches, and perhaps 2,000 to grapes, and only five per cent. of these are yet in full bearing condition. The same land that will produce peaches and grapes will also produce cherries, plums, pears, and certain kinds of apples, while the low lands interspersing the peach and grape ridges, and the swamp lands, so called, are well adapted to the small fruits, especially the cranberry, strawberry, &c.

The accompanying tables exhibit an approximate statement of the amounts of fruit shipped from ports in this region during the year 1869. The largest amounts named have been obtained from the books of the forwarding merchants and shipping companies as well as from the returns in the custom-house in Grand Haven City. The smaller amounts are estimated, there being no returns or record kept. The amount shipped by railroad and teams, to the interior of the State, and to eastern markets, together with the local consumption, would probably add twenty-five per cent. to these figures. All the places mentioned in the table are shipping points for Chicago, Milwaukee, Racine, Sheboygan, Kenosha, and other lake ports.

Since the invention of what are called "fruit safes," the finest peaches produced at Spring Lake, in the county of Ottawa, have been shipped to Boston, Massachusetts. These safes consist of a series of cases similar to type cases, but large enough for each compartment to hold a peach. These cases are stacked in a ventilated chest, and will travel any distance by rail without injury to the peaches.

With regard to the rise in the value of real estate, this is most remarkable in locations nearest to shipping points, and in the vicinity of harbors. In addition to those points which are on record, in the accompanying table, there are numerous piers and second-rate harbors, where fruit can be, and is, shipped to some extent, and even at these points land which formerly was considered valuable only for ties and wood is now salable at from ten to fifty dollars an acre when all the valuable timber is stripped off, and before it is cleared for cultivation. The increase in the price of real estate has kept an even pace with the confidence which each succeeding year inspires in the success of peach culture.

The location of Grand Haven being central with regard to north and south, perhaps the increase here may be regarded as a fair average of the whole region. It is unquestionably greater at St. Joseph on account of the longer time the business has been in operation there, while the increase north is proportionate with the time it has been discovered practicable to grow peaches at Manistee and Grand Traverse.

Planting peaches and grapes for market commenced in the vicinity of Grand Haven and Spring Lake in 1859–'60. At that time only four or five orchards were commenced. They were planted on land which had been stripped of the pine, and was regarded as of very little value, although in close proximity to the villages of Ferrysburg, Mill Point, (now called Spring Lake,) and Grand Haven City. In its wild state this land

would not then bring more than ten to fifteen dollars per acre. One of these orchards, that of the late George Redfield, containing sixteen acres planted to fruit, together with twenty-five acres of scrubby oak, full of grubs, sold in 1867 for $10,000 cash. Another, that of the late Rev. William M. Ferry, of Grand Haven, sold in 1868, for $13,000, and a portion of another, belonging to Colonel William M. Ferry at Ferrysburg, sold this year for $500 an acre.

The wild lands in the vicinity of these orchards vary in price from $50 to $200 an acre, as shown by actual sales. High land near navigable water, along the banks of Grand River, or near the little lakes, is the most esteemed, and, although five or six years ago it would not sell at $10 an acre, now commands $50 to $75, and even $100 an acre.

There is, however, plenty of land equally good for producing peaches, two or three miles from navigation, which can be bought at from five to ten dollars per acre, and it is rapidly settling up. This land, prior to the fruit period, and even two or three years ago could not be sold at any price, and was considered burdensome on account of taxes.

The character of the people who are removing to this region to engage in fruit culture is good—mostly men over forty years of age removing from the interior of the State, or from Wisconsin, Illinois, Indiana, Ohio, New York, New Jersey, Vermont, Massachusetts, England, and Germany. They are people of more than ordinary intelligence, seeking occupation congenial with a refined and cultivated taste.

The annexed table presents an estimate of the principal fruit products shipped from ports of this region in 1869:

Shipping ports.	Apples, bushels.	Peaches, baskets.	Pears, baskets.	Plums, baskets.	Cherries, baskets.	Quinces, baskets.	Grapes, pounds.	Blackberries, quarts.	Raspberries, quarts.	Strawberries, quarts.
St. Joseph	34,503	687,126	3,000	400	600	300	27,000	744,024	340,512	103,872
South Haven	5,307	19,271	.....	.....	.....	.....	14,000	.....	.....	.....
Saugatuck	34,000	24,000	400	.....	.....	.....	.....	.....	44,000	.....
Holland	1,011	7,914	.....	.....	.....	.....	.....	45,000	.....	1,500
Grand Haven	62,400	6,819	209	70	17	.....	18,000	.....	25,000	16,000
Muskegon	750	1,500	50	20	13	122	5,000	550,000	1,400	1,200
White River	400	500	15	.....	.....	24	1,400	2,000	7,000	1,400
Ludington	200	300	10	.....	.....	.....	500	600	500	500
Pentwater	300	500	15	.....	.....	.....	700	700	500	400
Manistee	1,000	1,600	18	.....	.....	.....	2,000	1,800	1,400	1,600
Northport	250	706	12	.....	.....	.....	600	700	.....	500
Grand Traverse	1,600	1,400	25	.....	.....	.....	1,900	1,500	1,700	400
Totals	141,740	751,630	3,754	490	630	446	71,100	1,346,324	421,812	127,372

The values of shipments are given as follows: Apples, at 80 cents per bushel, $113,392; peaches, at 85 cents per basket, $638,885 50; pears, at $1 per basket, $3,754; plums, at $1 per basket, $490; cherries, at $1 per basket, $630; quinces, at $1 per basket, $446; grapes, at 10 cents per pound, $7,110; blackberries, at 10 cents per quart, $134,632 40; raspberries, at 12 cents per quart, $50,617 44; strawberries, at 10 cents per quart, $12,737 20; 370 bushels cranberries, at $4 per bushel, $1,480; 146 baskets tomatoes, at 75 cents, $110 50; 660 barrels cider, at $4, $2,640—total, $966,925 04.

TEA CULTURE IN CALIFORNIA.

Herr Schnell, the manager of the experimental farm in El Dorado County, California, where the Japanese colonists are engaging in tea culture and the raising of other products hitherto peculiar to their own country, expresses himself as convinced that as good tea can be produced in California as is grown in China or Japan. He claims that there is but one species of tea known, the *Thea Sinensis*. Those plants described by botanists under the names *T. Bohea*, *T. Viridis*, *T. Stricta*, &c., being only varieties of the *T. Sinensis*, produced by different modes of cultivation and geographical distribution. Dr. Von

Siebold places the *Sinensis* under the *Monadelphia polyandria*, and to the natural family of the *Camelliaceæ*. The tea shrub in Japan is an evergreen, from four to six feet high, with a straight stem and numerous irregular branches. Growing wild, the shrub will reach a height of fifteen to twenty feet. The stem is of a bright gray color, the branches chestnut, and the wood hard, with a peculiar odor. On the young branches are the short, soft, green, small leaves, arranged in intervals, of an elliptical shape, with teeth on the borders, resembling closely the leaves of the wild rose. The color is a bright green, of different shades, deepening as the season advances. Between the leaves sprout the blossoms, which are at first of a rose color, but in the course of their development assume lighter shades, and finally, when full blown, are of the color of the ordinary tea rose. When these flowers fade away they leave a small fruit, which contains the seeds. Owing to the great quantity of oil contained in these seeds their preservation is difficult. All the new plants at Mr. Schnell's plantation are raised from seeds, which are planted in rows from four to six inches deep, in a manner similar to that in which beans are usually planted; but it is probable that out of the seeds planted in each hill, not more than one or two will sprout, owing to the decay produced by the excessive quantity of oil they contain. The proper time for planting is stated to be in November or December, when the sprout will appear in about thirty days. By the ensuing May the plant reaches a height of about fourteen inches, when the perfect and tender leaves are stripped off and placed under immediate manipulation. They are first put in a large copper pan and roasted, then placed in baskets and shaken and swung in the wind until they are dried of the moisture that has been exuded by the heat, then roasted again, then rolled in the palms of the hand to separate the leaves and prevent their crumbling into powder; then dried again in the baskets by shaking and swinging, and then put in jars, when they are ready for market. The black teas are roasted three times, the green teas but once or twice. Every year the trees or shrubs are trimmed down to a height of about three feet; after having passed that height, and when properly taken care of, they will produce good crops for upward of thirty years. It is necessary that the plant should have the morning sun and be on the south side of a hill, or the leaves will become yellow and the tea be inferior. Mr. Schnell has about one hundred and twenty acres of good agricultural land ready for planting, and about four hundred acres of rough land, which he proposes to clear as soon as it can be brought into requisition. The only question as to the success of tea culture in California is, whether labor can be obtained at sufficiently low rates to render the business profitable.

THE MENHADEN FISHERIES OF LONG ISLAND.

Menhaden is the name of a peculiar species of fish that come in vast shoals in the spring of the year into the bays at the east end of Long Island for the purpose of spawning. At that stage, however, they are generally in poor condition, and yield but little oil. The fish is not for eating, and the business of catching is to render the menhaden into oil and manure. From estimates furnished by the principal fishermen engaged in the menhaden fishery, the number taken during the past season is put down at 67,500,000. In addition the shore seines and pounds took 5,500,000, of which more than one-half were sold to farmers to be applied to the land for manure, while the remainder were taken to factories to

be transmuted into oil. The business of extracting oil from the menhaden was commenced with the establishment of one factory about twenty years ago. During the past season there have been seventeen factories in operation for a greater or less time on the shores of the Peconic and Gardiner's Bay. The capital invested in these factories, with the boats, nets, &c., is about half a million of dollars. Similar factories have been established in Maine, Rhode Island, Connecticut, New Jersey, and Virginia, so that the total amount invested in the business approximates a million of dollars. Last season there were over thirty gangs of men, three boats to a gang, out in Peconic Bay, one of which made a catch of 5,000,000 fish; the smallest catch was 500,000; the average, 2,500,000. For a period of seven months over one hundred vessels and upward of three hundred men were employed in the bays. The oil extracted from the fish is used for various purposes of dressing leather, in rope-walks, in painting, mixing with other oils, &c. The scrap is used as manure. Last season the produce was 7,105 tons of manure, and 11,460 barrels of oil.

MINERAL FOOD OF PLANTS.

Profitable feeding of animals requires minute attention to quantity and variety of food, proportioned to the varying requirements of the different species, ages, and conditions; and the economical growth of plants demands in equal degree a knowledge of kinds and proportions of plant food. A lack of this knowledge may cause the farmer to store up expensive manures, which may remain unappropriated for years, while the soil is too poor in other elements to yield a good return in the crop cultivated upon it. The grasses, which deteriorate the soil less rapidly than some other crops, will soon despoil the best of soils if their product, hay, is regularly carried away, and no compensating fertilizers are returned. The rate of exhaustion is indicated by the following table, prepared by Cuthbert W. Johnson, F. R. S., showing the proportion of certain mineral constituents existing in the grasses named:

Grasses.	Water.	Ash.	Phos. acid.	Lime.	Magnesia.	Potash.
NATURAL.						
Meadow fox-tail grass	80.20	1.55	6.25	3.90	1.28	37.03
Sweet-scented vernal grass	83.35	1.24	10.09	9.21	2.53	32.03
Downy oat grass	61.50	2.01	10.82	4.72	3.17	31.21
Upright brome	59.57	2.11	7.53	10.38	4.99	20.83
Soft brome	76.62	1.36	9.62	6.64	2.60	30.09
Crested dog's tail	62.73	2.38	7.24	10.16	2.43	24.99
Cock's foot	70.00	1.59	8.60	5.82	2.22	29.52
Seeds ripe	52.57	2.61	6.41	8.14	3.47	33.06
Hard fescue	69.33	1.66	12.07	10.31	2.83	31.84
Meadow soft	69.70	1.93	8.02	8.31	3.41	34.83
Perennial rye grass	58.85	2.51	8.73	9.64	2.85	46.72
Annual meadow	71.43	59	9.11	11.69	2.44	41.86
Smooth-stalked meadow grass	79.14	1.65	10.02	5.60	2.71	31.17
Rough-stalked meadow	67.14	2.20	9.13	8.80	3.22	29.40
Common cat's tail or timothy	73.60	2.26	11.29	14.94	5.30	24.25
Annual rye grass	57.21	1.99	10.07	6.82	2.59	28.99
ARTIFICIAL.						
Common red clover	66.00	1.85	6.71	22.62	4.08	36.45
Purple trefoil	81.01	1.58	8.46	26.61	10.22	22.12
Cow grass	81.65	1.77	5.41	24.56	4.52	34.72
Common vetch	77.57	1.11	10.59	20.78	5.31	32.82
Alsike clover	82.90	2.12	5.64	26.83	4.01	29.72
Bibwort	69.25	1.32	7.08	19.01	3.51	33.26
Salad burnet	84.75	1.15	7.81	24.82	4.21	30.26
Yarrow	85.56	.....	7.13	13.40	3.01	30.37
Lucerne	69.95	3.04	5.96	45.95	3.60	9.99

Perhaps the most important mineral element removed by farm crops is phosphate of lime, or the earthy salt of bones, composed of phosphoric acid, 55 parts, and lime, 45 parts. The proportion in which phosphoric acid exists in 10,000 pounds of the following products has been determined by Mr. Sprengel, a celebrated German chemist, as follows:

1. *Seeds not consumed on the land.*

	Pounds.
10,000 pounds of the seeds of wheat contain of phosphoric acid	400
10,000 pounds of the seeds of barley contain of phosphoric acid	210
10,000 pounds of the seeds of oats contain of phosphoric acid	70
10,000 pounds of the seeds of beans contain of phosphoric acid	292
10,000 pounds of the seeds of peas contain of phosphoric acid	190

2. *The straw and roots chiefly consumed on the land, and whose solid constituents are returned to the soil.*

	Pounds.
10,000 pounds of the straw of wheat contain of phosphoric acid	170
10,000 pounds of the straw of barley contain of phosphoric acid	160
10,000 pounds of the straw of oats contain of phosphoric acid	12
10,000 pounds of the straw of beans contain of phosphoric acid	226
10,000 pounds of the straw of peas contain of phosphoric acid	240
10,000 pounds of the red clover contain of phosphoric acid	138
10,000 pounds of the sainfoin contain of phosphoric acid	220
10,000 pounds of the cabbages contain of phosphoric acid	436
10,000 pounds of the common turnips contain of phosphoric acid	73
10,000 pounds of the Swede turnips contain of phosphoric acid	408
10,000 pounds of the carrots contain of phosphoric acid	395

The following is an approved estimate of the quantity of this acid carried away by live stock from a farm of one hundred acres:

	Acid.	Bones.
In the bones and flesh of 110 lambs, of 25 pounds each, at 6 weeks old	145	537
In 40 year-old sheep of 90 pounds each	210	777
In 4 calves, at 5 weeks old, weighing together 500 pounds	21	77
In 4 young cows, forming 135 pounds of flesh and 35 pounds of bone each, per annum	16	23
In 2 young horses, gaining the same as the last	21	77

Lime is also dissolved by rains and carried deeper into the earth, or into drains or streams, as analysis of such waters often show. As might be expected, lime proves a valuable ameliorator of such lands.

The loss of lime by cultivation is thus given by Professor J. F. Johnston, as to the crops mentioned:

	Pounds.
25 bushels of wheat remove from the soil, of lime	9
50 bushels of oats remove from the soil, of lime	9
38 bushels of barley remove from the soil, of lime	15
2 tons of rye grass remove from the soil, of lime	33
2 tons of red clover remove from the soil, of lime	126
25 tons of turnips remove from the soil, of lime	140
9 tons of potatoes remove from the soil, of lime	270

BEET-SUGAR MANUFACTURE IN THE GERMAN ZOLLVEREIN.

H. Kriesmann, United States consul at Berlin, communicates the following interesting facts in reference to the beet-sugar manufacture in the German Zollverein:

In view of the attempts that are being made to introduce the planting of the sugar beet, and the manufacture of beet sugar in our own country, it may not be without interest for the government to be informed what an important source of revenue they form in the German Zollverein.

During the year from September 1, 1868, to August 31, 1869, the revenue collected on beet sugar in the states of the Zollverein amounted to the sum of 12,488,328 thalers, or 9.79 groschens per head of the entire population—a groschen being two and a half cents in gold. This is 2,339,983 thalers, or 23.1 per cent. more than the amount collected in 1867–'68. This very considerable increase is owing in part to the abundant crop of beets in 1868, both as regards quantity and quality; but in part also to the extension of the Zollverein over the states of Schleswig-Holstein and Mecklenburg. The quantity of beets on which taxes were paid in 1868–'69 amounted to 41,953,656 centners. It requires on an average about twelve and a half centners of beets to produce one hundred-weight of raw sugar. Taking this rate for a basis there were manufactured during the period in question 3,966,292 centners of beet sugar, while in the preceding year, 1867–'68, only 3,247,471 centners were manufactured; an increase for 1868–'69 of 748,821 centners.

Of the whole amount of revenue collected from beet sugar in the Zollverein, 11,881,713 thalers were raised in the states of the North German Confederation, to wit: In Prussia, 10,700,950 thalers, or 85.69 per cent.; in Saxony, 15,783 thalers, or 0.13 per cent.; in the Thuringian Principalities, 49,152 thalers, or 0.39 per cent.; in Brunswick, 1,115,828 thalers, or 8.93 per cent. The amounts raised in the Southern German States were as follows: In Bavaria, 94,937 thalers, or 0.76 per cent.; in Würtemberg, 284,494 thalers, or 2.28 per cent.; and in Baden, 227,184 thalers, or 1.82 per cent.

After deducting 940,965 thalers on drawbacks for the sugar exports from the Zollverein, and 354,411 thalers for the expense incurred in inspecting and supervising the beet-sugar factories, the net proceeds from the tax on beet sugar amount to 11,192,952 thalers, or 8.77 groschens per head of the population. The amount collected was divided among the States belonging to the Zollverein as follows: The North German Confederation received as its quota 8,618,872 thalers, or 77 per cent.; Luxemburg, 58,438 thalers, or 9.52 per cent.; Bavaria, 1,411,822 thalers, or 12.60 per cent.; Würtemberg, 519,747 thalers, or 4.64 per cent.; Baden, 418,957 thalers, or 3.75 per cent.; and Hesse-Darmstadt 165.116 thalers, or 1.48 per cent.

The drawbacks for the sugar exports, as before stated, amounted for 1868–'69 to 940,965 thalers, as against 398,279 thalers for 1867–'68. The former sum representing 328,244 centners, and the latter 138,935 centners of raw-beet sugar, which shows an increase in 1868–'69 of 189,309 centners, or 1.36 per cent. Of the whole sugar manufacture, 83,668,048 centners were consumed within the Zollverein, making 9.58 pounds of beet sugar consumed per head of the entire population.

With such results as these, would it not be in the interest of our own people and government to stimulate and encourage the planting of sugar beet and the manufacture of beet sugar throughout the Union?

FARM CAPITAL.

In an address made at a meeting of the Framlingham Farmers' Club, near the close of 1869, Mr. Mechi, alluding to the great changes brought about through the facilities afforded by science, said that it was too much the custom to dwell on the advance which agriculture has made, rather than the actual defects of its present practice. He thought that attention was imperatively demanded toward increasing the food and employment of the people by a profitable and enlarged investment of capital. He considers most farms too large by more than one-half for the working capital employed, but does not object to large farms if the working capital is sufficient, say £20 per acre.

As an instance of what should be accomplished with proper means, Mr. Mechi cites his own "small" farm of one hundred and seventy acres—all arable land with the exception of fourteen acres of permanent pasture. He purchased his land in comparatively poor condition, in 1841, at a cost of £23 per acre. He invested nearly the same amount

in drainage, roads, buildings, clearances, and machinery. So that in his exhibit as tenant-farmer, he charges himself with an annual rent of £2 per acre. His capital as tenant, December 31, 1868, averaged per acre, is stated thus: Live stock, £6 10*s.*; farm-houses, £1 1*s.*; tillage, manure, &c., £3 15*s.* 6*d.*; implements and machinery, £2 10*s.*; hay, corn. &c., unsold, £2 5*s.* Total per acre, £16 1*s.* 6*d.* The items for live stock and tillage may seem large, but the considerable amount invested in live stock, fed mostly on purchased food, is the key to his large and frequent crops and net profit; the large item of tillage, &c., arising from very deep cultivation, and much larger applications of rich oil-cake and corn manure than are generally administered. These methods of outlay account for his production of forty tons of mangold per acre in 1869, and for his frequent production of forty-eight to sixty-four bushels of wheat. Although the season of 1869 was not a good one, his best two fields of white wheat produced forty-eight bushels per acre.

His statement shows a capital of about £7,800 invested in the farm, for which he charges a landlord's rental of £2 per acre, or nearly four and a half per cent. He employs also a tenant's capital of £2,720, from which he obtains a profit of more than £260, or nearly ten per cent. In a series of years this profit ranges from eight to fifteen per cent.

But as more outlay for live stock and purchased food is needed to maintain naturally poor soils in the desired condition of fertility than is required on richer lands, his experience has convinced him that on such land as his own, he could do much better with a capital of £20 to £25 per acre than with £16 per acre. Many farmers in Norfolk and Lincolnshire employ a capital of £20 to £30 per acre advantageously.

In respect to the preparation of the soil, Mr. Mechi continues:

> To farm to the greatest advantage, the soil and subsoil, to the depth of three feet, should be well manured; now we only manure the top five or six inches. Our root and green crops can never be over-manured, for they feed in the deep subsoil, when in a fit condition. Market gardeners understand this well; and around the metropolis they easily grow seventy tons of mangolds per acre, and other crops in proportion.

These are his views upon the economical restoration of land:

> Poor land may be almost immediately made fertile by heavily folding with sheep, consuming £10 or £15 worth per acre of oil-cake, corn, hay, roots, &c., not the produce of the land upon which the sheep are placed; supposing that there should be a loss even of £3 to £5 per acre, great will be the after gain. This system requires capital; but where there is capital it is far cheaper than guano or other artificials. Where my forty tons of mangolds per acre grew this year, the land was autumn-manured with shed manure, at the rate of £20 worth of oil-cake, &c., consumed for every acre manured, and some guano in addition. This is what I call capital farming, as well as farming with capital. It is the true way to make land pay.

On the 45,000,000 acres, round numbers, available for cultivation in the kingdom, Mr. Mechi estimates the land-owner's capital to average £33 per acre, with an annual rent of 25*s.*; while the tenant-farmer's capital can hardly reach an average of £5 per acre, calculated on this entire available area. The gross salable yearly product he estimates to average, on a liberal calculation, less than £4 per acre, being a total agricultural product of £182,000,000 to a population of 32,000,000, or less than £6 per individual inhabitant.

He regards it as a disgrace to Great Britain, that, while 80,000,000 of bushels of foreign wheat are required annually, about one-half, or 22,000,000 acres, of the available acreage remains in primitive pasturage, producing a minimum of food, and employing a minimum of labor probably not more than 40*s.* to 50*s.* worth of food per acre, while their latent capacity is indicated by the fact that on his own naturally poor soil he has frequently realized £15 to £26 per acre in grain and straw.

GRAPE TESTS.

The following is a summary of a test of the saccharine quality of grapes grown in Vine Valley, Yates County, New York, made by a committee of the Vine Valley Grape Growers' Association, Oechste's must scale being the instrument used:

ISABELLA.

A. A. Smith, Vine Valley, picked October 15	80
Green & Mosher, Vine Valley, picked October 20	82
Ganundawah Grape Company, Vine Valley, picked October 25	84
Nichols, Seelye & Co., Vine Valley, picked October 10	85
A. Bassett, Vine Valley, picked October 23	81

CATAWBA.

Green & Mosher, Vine Valley, picked October 14	87
Vine Valley Grape Company, Vine Valley, picked October 7	87
Perry Brothers, Vine Valley, picked October 20	90

CONCORD.

A. A. Smith, Vine Valley, picked October 1	80
Nichols, Seelye & Co., Vine Valley, picked September 25	*85

DIANA.

A. A. Smith, Vine Valley, picked October 23	89
Nichols, Seelye & Co., Vine Valley, picked October 18	90

DELAWARE.

A. A. Smith, Vine Valley, picked October 1	105
Perry Brothers, Vine Valley, picked October 25	105
Nichols, Seelye & Co., Vine Valley, picked September 25	107

IONA.

Perry Brothers, (tested at New York State grape fair,) October 6	97

In each case two pounds of the fruit was used, and after being thoroughly mashed and pressed, the must was strained. In every instance, the highest figure was reached by grapes grown at the highest altitude.

LIVE STOCK RECEIPTS AT NEW YORK.

The receipts of live stock at New York for the year 1869 were as follows, compared with those for the preceding year:

	1869.	1868.
Beeves	325, 761	293, 101
Milch cows	4, 836	5, 382
Veal calves	93, 984	82, 935
Sheep and lambs	1, 479, 563	1, 400, 623
Swine	901, 308	976, 511
Total	2, 805, 452	2, 758, 552

*Tested at the New York State Fair at Canandaigua, October 6.

Average price of beeves for the year, $14\frac{3}{5}$ cents per pound, being about one cent per pound lower than the average of 1868. The sources of supply were as follows:

Illinois	198,433
Ohio	29,792
Texas	23,178
Kentucky	22,887
New York	19,170
Indiana	11,077
Missouri	10,596
Michigan	2,281
Iowa	2,061
Canada	1,741
Pennsylvania	1,351
Connecticut	1,090
West Virginia	935
New Jersey	869
Florida	275
Massachusetts	52
Tennessee	18
Nebraska	15

LIVE STOCK AT CHICAGO.

George T. Williams, assistant secretary, supplies the following report of receipts and shipments of live stock at the Union stock-yards, Chicago, Illinois, for the year ending December 31, 1869:

Source of supply.	Cattle.	Hogs.	Sheep.	Horses.
RECEIPTS.				
Chicago, Rock Island and Pacific railroad	58,669	237,113	21,531	63
Illinois Central railroad	75,018	378,963	102,703	365
Chicago, Burlington and Quincy railroad	119,876	511,073	76,689	261
Chicago and Northwestern railroad	64,388	269,235	52,983	171
Chicago and Alton railroad	75,644	205,725	50,999	126
Pittsburg, Fort Wayne and Chicago railroad	666	5,692	2,850	206
Michigan Central railroad	2,599	18,723	7,502	104
Michigan Southern railroad	1,879	27,269	18,438	214
Pittsburg, Cincinnati and St. Louis railroad	1,891	7,256	5,044	11
Driven into yard	2,472	820	1,333	2
Total	403,102	1,661,869	340,072	1,524
Total in 1868	324,524	1,706,782	270,875	1,626
SHIPMENTS.				
Pittsburg, Fort Wayne and Chicago railroad	124,882	410,177	29,515	151
Michigan Central railroad	70,971	125,489	47,220	65
Michigan Southern railroad	66,935	539,809	25,798	169
Pittsburg, Cincinnati and St. Louis railroad	13,964	2,561	1,375	35
Chicago, Rock Island and Pacific railroad	5,421	974	942	110
Illinois Central railroad	3,986	2,728	270	90
Chicago, Burlington and Quincy railroad	2,791	596	565	47
Chicago and Northwestern railroad	3,608	3,153	2,718	842
Chicago and Alton railroad	2,159	818	287	29
Total	294,717	1,086,305	108,690	1,538
Total in 1868	215,987	1,020,329	81,773	1,837

THE PRICES OF DOMESTIC WOOLS DURING THE PAST FIFTEEN YEARS.

[From Walter Brown & Son's Circular, January 1, 1870.]

	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.
January:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Fleece	25 to 45	31 to 46	34 to 65	24 to 45	42 to 72	40 to 62	35 to 54	48 to 55	58 to 75	73 to 78	85 to 107	45 to 68	40 to 70	35 to 65	45 to 70
Pulled	28½ to 42	30 to 39	32 to 55	20 to 23	34 to 50	32 to 55	28 to 50	43 to 50	57 to 73	65 to 85	75 to 110	35 to 75	22 to 55	24 to 47	28 to 50
February:															
Fleece	24 to 42	31 to 47	42 to 67	36 to 42	48 to 75	40 to 62	35 to 52	43 to 55	70 to 95	70 to 85	85 to 108	45 to 72	42 to 75	36 to 65	45 to 70
Pulled	21 to 36	34 to 40	33 to 43	25 to 32	35 to 67	35 to 52	28 to 48	37 to 50	70 to 90	62 to 78	70 to 97	35 to 75	27 to 55	25 to 48	28 to 52
March:															
Fleece	24 to 42	35 to 56	42 to 67	33 to 40	48 to 75	37 to 62	35 to 52	43 to 55	86 to 105	68 to 85	60 to 90	45 to 80	44 to 75	38 to 65	45 to 70
Pulled	21 to 36	30 to 43	33 to 62	18 to 33	35 to 58	30 to 52	28 to 48	37 to 50	80 to 95	60 to 78	50 to 75	32 to 65	27 to 55	25 to 48	28 to 52
April:															
Fleece	25 to 45	35 to 55	42 to 67	29 to 42	45 to 67	36 to 60	35 to 48	42 to 56	70 to 90	70 to 87	60 to 85	44 to 65	45 to 77	42 to 68	45 to 70
Pulled	21 to 36	33 to 45	33 to 47	22 to 36	32 to 58	30 to 48	28 to 48	35 to 48	85 to 95	65 to 78	50 to 75	25 to 60	28 to 58	30 to 50	26 to 52
May:															
Fleece	25 to 44	35 to 58	42 to 60	33 to 42	40 to 60	35 to 60	30 to 42	42 to 52	65 to 90	73 to 90	50 to 80	40 to 62	45 to 75	43 to 68	43 to 70
Pulled	21 to 37	35 to 50	36 to 50	25 to 36	32 to 52	28 to 46	24 to 48	35 to 47	65 to 90	65 to 83	50 to 70	25 to 57	28 to 60	33 to 52	26 to 50
June:															
Fleece	26 to 43	27 to 40	40 to 65	37 to 42	40 to 60	30 to 58	37 to 41½	43 to 50	62½ to 77	75 to 105	50 to 80	42 to 75	44 to 75	43 to 68	42 to 65
Pulled	23 to 37	35 to 42	33 to 43	25 to 36	32 to 52	25 to 47	29 to 38	37 to 48	63 to 78	70 to 93	45 to 68	27 to 60	28 to 60	33 to 52	26 to 50
July:															
Fleece	26 to 45	30 to 47	37 to 60	28 to 45	36 to 62	33 to 58	20 to 40	35 to 60	68 to 75	85 to 120	50 to 86	47 to 80	40 to 70	40 to 65	43 to 65
Pulled	24 to 37	12 to 41	30 to 45	26 to 37	30 to 50	30 to 47	28 to 30	25 to 53	65 to 78	70 to 100	45 to 68	30 to 65	28 to 60	27 to 50	26 to 50
August:															
Fleece	26 to 50	38 to 52	37 to 60	30 to 45	40 to 60	40 to 60	22 to 40	51 to 62	65 to 75	90 to 125	50 to 80	48 to 75	40 to 67	38 to 65	43 to 65
Pulled	24 to 37	32 to 42	35 to 55	22 to 38	30 to 50	34 to 48	22 to 37	35 to 55	60 to 70	75 to 115	45 to 70	30 to 65	28 to 60	25 to 48	26 to 50
September:															
Fleece	27 to 47	36 to 55	43 to 60	32 to 45	38 to 62	40 to 60	28 to 40	60 to 66	60 to 72	75 to 110	50 to 82	48 to 75	40 to 67	40 to 65	43 to 65
Pulled	25 to 40	33 to 47	35 to 50	26 to 40	30 to 50	36 to 50	26 to 40	50 to 53	55 to 68	65 to 105	45 to 70	30 to 65	28 to 58	25 to 47	26 to 50
October:															
Fleece	27 to 50	37 to 55	30 to 45	32 to 50	40 to 65	30 to 60	32 to 52	55 to 72	60 to 85	80 to 110	50 to 82	47 to 75	37 to 65	42 to 70	43 to 65
Pulled	29 to 39	30 to 52	27 to 40	26 to 40	30 to 52	25 to 55	24 to 50	50 to 62	59½ to 80	65 to 100	45 to 70	30 to 65	25 to 57	25 to 50	24 to 47
November:															
Fleece	26 to 49	42 to 56	30 to 37	33 to 55	40 to 60	36 to 65	35 to 53	59 to 70	70 to 83	90 to 110	50 to 80	46 to 70	34 to 65	45 to 70	43 to 65
Pulled	25 to 39	37 to 46	25 to 32	32 to 52	30 to 50	30 to 55	36 to 50	56 to 65	67 to 80	75 to 100	40 to 65	30 to 65	25 to 50	30 to 50	24 to 47
December:															
Fleece	31 to 44	38 to 62	25 to 64	40 to 71	40 to 62	30 to 60	46 to 52	60 to 69	75 to 85	90 to 115	50 to 67	42 to 70	34 to 65	45 to 72	40 to 65
Pulled	31 to 39	34 to 48	20 to 30	33 to 47	32 to 52	25 to 50	28 to 50	55 to 70	70 to 76	75 to 110	40 to 65	22 to 58	24 to 50	28 to 50	24 to 46

The average prices of domestic fleece wool in the United States from 1857 to 1861 was: For fine, 50 $\frac{3}{10}$c.; for medium, 42 $\frac{8}{10}$c.; and for coarse, 35 $\frac{5}{10}$c. Average prices for four years, from 1861 to 1866, (during the war,) for fleeces, 63c. to 83c.; for pulled, 56c. to 61c. Average prices for the year 1866: Fleeces, 45c. to 72c.; pulled, 29c. to 64c. Average prices for the year 1867: Fleeces, 40c. to 70c.; pulled, 26c. to 57c. Average prices for the year 1868: Fleeces, 40c. to 67c.; pulled, 27c. to 49c. Average prices for the year 1869: Fleeces, 43c. to 67c.; pulled, 26c. to 50c.

EXPORTS OF PETROLEUM.

The New York Commercial List gives the following table of petroleum exports for the last seven years, from the several ports named, and the total exports for the preceding two years:

From—	1869.	1868.	1867.	1866.	1865.	1864.	1863.
New York.....galls..	65, 933, 600	52, 803, 202	33, 834, 133	34, 501, 385	14, 626, 090	21, 335, 784	19, 547, 604
Boston.....galls..	2, 117, 939	2, 410, 114	2, 264, 113	1, 591, 694	1, 511, 173	1, 666, 307	2, 049, 421
Philadelphia.....galls..	33, 445, 552	40, 505, 621	29, 437, 429	28, 811, 853	12, 552, 882	7, 760, 148	5, 395, 738
Baltimore.....galls..	1, 251, 423	2, 587, 707	1, 515, 454	2, 433, 419	973, 117	929, 971	915, 866
Portland.....galls..	.....	705, 107	900	12, 100	11, 088	70, 762	342, 082
New Bedford.....galls..	.....	.....	.....	30, 000	50, 000	.....	.....
Cleveland.....galls..	.....	270, 000	.....	.....	81, 173	80, 000	.....
Total.....	102, 748, 604	99, 281, 750	67, 052, 029	67, 430, 451	29, 805, 523	31, 872, 972	28, 250, 721
Equal to barrels of 40 galls.	2, 568, 715	2, 482, 044	1, 676, 300	1, 685, 761	745, 138	796, 824	706, 268

Total export in 1862, 10,887,701 gallons; 1861, 1,500,000 gallons.

The average prices per gallon for the past six years, are given as follows:

Years.	Crude in bulk.	Crude in barrels.	Refined, st'd white	Naphtha.
	Cents.	*Cents.*	*Cents.*	*Cents.*
1869.....	18. 25	23. 25	32. 73	10. 33
1868.....	14. 40	19. 68	29. 52	18. 91
1867.....	12. 17	17. 43	28. 41	23. 75
1866.....	.....	25. 78	42. 45	37. 84
1865.....	.....	38. 37	58. 87	50. 37
1864.....	.....	41. 81	65. 03	39. 54

FACTS FROM VARIOUS SOURCES.

The editor of the Rocky Mountain News, after a trip among the farmers of the valley of the Cache à la Poudre, reports the wheat crop of about forty producers visited to reach 8,660 bushels; oats and barley, 24,350 bushels; corn, 2,910 bushels; potatoes, 106,090 bushels. The average yield of wheat in the valley is stated to be 22½ bushels per acre, though crops are reported which average as high as 35½ bushels. Careless farming and the grasshoppers reduced the general average. The average yield of oats is 38½ bushels to the acre; the highest yield reported, 58⅓ bushels. Corn averaged 25½ bushels per acre; and potatoes, 87 bushels. The latter crop is considered a partial failure. The yield of the same farms in 1868 was as follows: Wheat, 5,258 bushels; oats and barley, 25,000 bushels; corn, 2,125 bushels; potatoes, 5,217 bushels. The hay crop of thirty-five parties named reaches 2,465 tons. Of butter, ten farmers report a total of 18,971 pounds. The whole number of acres under cultivation, (not including hay land,) is between 1,500 and 2,000. The above figures do not show the complete crops of the valley, as there were a few farmers which the reporter failed to see.

A Colorado farmer urges more attention to the raising of hogs in that Territory. He says bacon, hams, and shoulders have averaged there more than thirty cents per pound for years, and that grain, at an average of two and one-half cents per pound, as it has been for two years past, can nowhere else find so good a market as in the pig-pen. His experience is in favor of using early spring pigs. He feeds them on milk and offal from the kitchen and garden until they outgrow the supply, when he adds bran and shorts to the milk, letting it sour. His pigs thrive wonderfully on this fare, much better than on corn alone or any other

dry grain. He had many pigs that on December 1 would dress 180 pounds each, while pigs from the same litter, fed on dry grain at a mill, would not dress half as much. For about two weeks before killing, he gives them all the corn they want.

It is stated that smutty wheat can be made into good and wholesome flour by adding one quart of finely pulverized air-slacked lime to each eight bushels of grain, thoroughly mixing it before it passes through the cleaning apparatus of the grist-mill previous to grinding. The lime seems to cut the smut which adheres to the fuzzy end of the wheat, and both are blown out with other dust and dirt.

An Ohio correspondent, writing from Butler County, gives the weight of eleven lots of hogs, in all 537 head, raised within two miles of Monroe. They were of the big China and the Poland blood, and were 22 months old. The average gross weight was 540 pounds each. Ten choice hogs averaged 763 pounds. One lot of 80 averaged 574 pounds each. The ten which averaged 763 pounds ranged from 676 pounds to 935 pounds. It is further stated that a lot of eleven-months pigs, thirty in number, averaged 384 pounds. Another lot of thirty averaged 386 pounds.

Another correspondent, at Woodbury, New Jersey, states that he purchased four pigs, at $15 each—$60; paid for corn, $2; mill feed, $27 25; hog cheese, (chandlers' scraps,) $28 36; ground rye and corn, $17 60; small sweet potatoes, $9; forty-eight bushels of corn, ground, $51 20—total expenses, $195 41. When slaughtered the total weight was 1,963 pounds; average 490¾ pounds. The 1,963 pounds of pork, at 14 cents per pound, brought $274 82; for the manure he is offered $40; total receipts, $314 82. Net profit on the four hogs, $119 41. The pigs were penned January 18, 1869, and were never allowed to go out. They were killed December 11, 1869, aged 15 months and 19 days.

The shipments of butter, by freight, from St. Albans, Vermont, during the year 1868, amounted to 2,875,060 pounds; and of cheese, 736,920 pounds. These figures would be considerably increased by the addition of the amount of the same product shipped by express.

The Winona Republican states that the exports of wheat from that city in 1869 were 3,769,450 bushels, against 2,453,086 bushels in 1868; and the exports for the whole State, 10,016,116 bushels, against 6,990,584 bushels in 1868.

The imports of molasses, (exclusive of receipts on Pacific coast,) in 1869, reached 50,016,167 gallons, against 55,502,989 gallons in 1868. The total consumption in the United States of foreign and domestic, including sugar-house sirups, and sorghum and maple molasses, is estimated at from 98,000,000 to 100,000,000 gallons.

The imports of sugar for the year 1869 (exclusive of receipts on the Pacific coast) were 501,354 tons, against 470,975 tons in 1868. The total consumption in the United States during the year is estimated at 574,399 tons, against 543,033 tons in 1868.

There were exported from San Francisco during the year ending December 31, 1869, 427,497 barrels of flour, 5,011,022 centals of wheat, 314,755 centals of barley, and 27,060 centals of oats. Of the flour shipped 152,193 barrels went to China, 64,469 barrels to Australia, 37,236 barrels to Rio Janeiro, 33,370 barrels to Montevideo, 26,751 barrels to Great Britain, and 22,976 to New York. Of the wheat, 4,785,872 centals were sent to Great Britain, and only 136,200 centals to New York.

The receipts of wool in San Francisco for 1869, according to the Commercial Herald, California, were: spring clip, 8,735,484 pounds; California fall clip, 4,469,136 pounds; California pulled wool, 1,698,340 pounds; Oregon and northern coast, 1,104,000 pounds; Sandwich Islands, 23,909 pounds; total, 16,030,869 pounds. The total California product reached

15,409,171 pounds, against 12,920,761 pounds in 1868. The amount shipped to eastern markets was 13,303,531 pounds.

In the nine months ending September 30, 1869, Great Britain paid to the United States for receipts of wheat £4,316,629, against £3,706,955 in the corresponding period of 1868, and £1,469,442 in same period in 1867. The payments made to Russia for the nine months of 1869 amounted to £2,390,085, against £4,828,001 in 1868 and £6,622,639 in 1867; and to Prussia £2,018,485 against, £2,315,614 in 1868 and £2,315,614 in 1867.

The importations of wheat into the United Kingdom during the eleven months ending November 30, 1869, amounted to 32,648,051 hundred-weight, against 30,512,493 hundred-weight for the corresponding period of preceding year. Of this amount 11,086,982 hundred-weight were received from the United States, against 5,513,643 hundred-weight for the same period in 1868; from Russia, 7,761,915 hundred-weight, against 9,397,245 hundred-weight in 1868; from Prussia, 4,264,520 hundred-weight, against 4,004,655 hundred-weight in 1868; from British North America, 2,077,850 hundred-weight, against 437,036 hundred-weight in 1868. It will be noted that the receipts from the United States have increased nearly one hundred per cent.

Official figures from the department of the Prussian minister of agriculture show that in the several provinces of that kingdom the past year the wheat crop has fallen four per cent. below the product of 1868; rye, eight per cent. below; barley, seven per cent.; oats, eleven per cent.; peas, twelve per cent.; and potatoes, fifteen per cent. below the preceding yield. The straw of the several crops is reported as follows: Wheat and rye, one per cent. below the product of 1868; barley, seven per cent. below; oats, twelve per cent. below; peas, six per cent. below; and buckwheat, thirty-seven per cent. below.

A government commission in France is engaged in the investigation of a disease which has for many years caused great ravages among the live stock in some parts of that empire. This disease is peculiar to the departments of the Cantal and Puy de Dôme, in the center of France, and is known by the name of "Mal de Montagne." It infects the cattle fed upon the highlands of the departments, which form a vast volcanic plateau about 3,500 feet above the level of the sea. The southern and western departments are supplied with cattle from these pastures, and almost all the young beasts which are fattened in Normandy are bred here. Large quantities of cheese are also made in these districts. It seems to be established that the malady consists in an affection of the viscera of the animal, caused by the presence in the blood of an undue quantity of carbon; whether produced by the peculiar properties of the flora or water, remains doubtful.

It is stated that of the *Extractum carnis*, or essence of meat, prepared on Baron Liebig's system, at the works of the company at Fray Bentos, Uruguay, the exportation for 1869 amounted to about fifty thousand pounds per month. It is said that the meat of this country is without fat, and is insipid.

A French circular estimates the beet-sugar crop of that country to be from two to two and a half per cent. larger than that of the preceding year, and the total product is estimated to reach 250,000 tons, though other circulars place it lower. A Liverpool circular reports the beet-sugar production of Europe last year at 725,000 tons, against 625,000 tons in 1868. The number of beet-sugar factories in the countries named are stated to be as follows: France, 475; Belgium, 120; Zollverein, 297; Austria, 209; besides thousands of spirit distilleries and alkali works, the results of the sugar-beet industry.

METEOROLOGY.

[COMPILED IN THE DEPARTMENT OF AGRICULTURE FROM REPORTS MADE BY THE OBSERVERS OF THE SMITHSONIAN INSTITUTION. NOTES ON THE WEATHER FROM REPORTS RECEIVED UP TO JANUARY 16; TABLES, TO JANUARY 20.]

DECEMBER, 1869.

Table showing the highest and the lowest range of the thermometer, (with dates prefixed,) the mean temperature, and the amount of rain-fall, (including melted snow,) in inches and tenths, for December, 1869, at the stations, and by the observers named. Hours of observation, 7 a. m., and 2 and 9 p. m.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MAINE.				°		°	°	*In.*
Houlton	Aroostook	Chas. H. Fernald	27	44	6, 9	—15	20.6	5.10
Steuben	Washington	J. D. Parker	1	52	4	— 1	27.9	8.38
Williamsburg	Piscataquis	Edwin Pitman	1	40	15	— 7	20.9	6.05
West Waterville	Kennebec	B. F. Wilbur	17	45	9	— 4	25.4	5.18
Gardiner	do	R. H. Gardiner	1	49	10	— 7	25.3	4.74
Lisbon	Androscoggin	Asa P. Moore	11	53	10	—11	25.9	4.10
Norway	Oxford	H. D. Smith	1	45	10	—10	23.7	4.25
Cornish	York	Silas West	1	48	9	0	25.7	2.93
Cornishville	do	G. W. Guptill	1	50	4	5	27.3	6.21
Averages							24.7	5.22
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	27	44	10	— 5	21.3	4.58
Whitefield	do	L. D. Kidder	1	44	9	—20	21.9	2.63
Shelburne	do	Fletcher Odell	11	41	10	—14	.....	.....
Tamworth	Carroll	Alfred Brewster	1	48	9	—20	23.0	5.63
Concord	Merrimac	Jas. C. Knox	1	50	8	—15	26.5	.....
Goffstown Center	Hillsborough	Alfred Colby	17	44	8	6	28.1	2.76
Averages							24.2	3.90
VERMONT.								
Lunenburg	Essex	H. A. Cutting, A. M	1	40	8	—12	22.0	3.03
North Craftsbury	Orleans	Rev. E. P. Wild	26	40	8	— 5	20.2	4.19
Newport	do	J. M. Currier	28	40	8	— 8	25.5	4.00
East Bethel	Orange	Chas. S. Paine	1	47	8	—13	24.8	2.69
Woodstock	Windsor	Doton and Miller	1	43	8	—18	22.4	2.94
Near St. Albans	Franklin	A. H. Gilmour	22	44	8	— 8	22.4	.....
West Charlotte	Chittenden	Miss M. E. Wing	26	44	8	0	26.1	4.05
Middlebury	Addison	H. A. Sheldon	1	45	8	— 1	27.5	3.45
Panton	do	D. C. Barto	1	42	8	0	29.1	4.67
Castleton	Rutland	Rev. R. G. Williams	1	45	8	— 9	25.9	6.92
Averages							24.6	3.99

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MASSACHUSETTS.				°		°	°	*In.*
Kingston	Plymouth	G. S. Newcomb	28	53	8	4	32.5	3.25
Topsfield	Essex	S. A. Merriam	1	49	10	— 3	28.0	6.66
Lawrence	....do	John Fallon	1	51	10	— 6	28.2	4.21
Newbury	....do	John H. Caldwell	17	50	10	0	29.0	.....
Georgetown	....do	S. A. Nelson	26	50	10	2	29.7	5.10
Milton	Norfolk	Rev. A. K. Teele	17	62	4,10	3	34.4	4.98
Cambridge	Middlesex	Mrs. J. B. Perry	1	53	10	4	31.5	.....
North Billerica	....do	Rev. E. Nason and son	12,27	48	10	— 9	28.8	.....
West Newton	....do	Jno. H. Bixby	22	54	8	— 4	30.6	.....
Worcester	Worcester	Jos. Draper, M. D	1	46	4,10	7	29.7	5.25
Mendon	....do	Jno. G. Metcalf, M. D	22	50	10	0	28.1	2.60
Lunenburg	....do	Geo. A. Cunningham	22,27	47	8	5	29.1	5.15
Amherst	Hampshire	Prof. E. S. Snell	22,30	43	9	— 8	27.5	4.96
Richmond	Berkshire	Wm. Bacon	27	47	9	6	26.5	4.10
Williams College	....do	Prof. A. Hopkins	22,26	45	8	— 2	27.2	4.40
Hinsdale	....do	Rev. E. Dewhurst	27	50	7	1	25.1	2.87
Averages							29.1	4.40
RHODE ISLAND.								
Newport	Newport	W. H. Crandall	22,28	48	9	17	34.6	6.08
CONNECTICUT.								
Columbia	Tolland	Wm. H. Yeomans	22	52	9	4	31.9	5.76
Middletown	Middlesex	Prof. Jno. Johnston	1,22	50	10	— 5	29.2	5.80
Colebrook	Litchfield	Charlotte Rockwell	27	48	10	3	26.7	4.15
Brookfield	Fairfield	Rev. S. W. Roe	27	52	8	0	32.5	7.30
Averages							30.1	5.75
NEW YORK.								
Moriches	Suffolk	E. A. Smith & daugh'rs	11	57	10	7	37.1	5.39
South Hartford	Washington	G. M. Ingalsbe	17	46	8	— 4	27.9	4.10
Fort Edward	....do	Prof. J. S. Cooley	17	51	10	4	32.1	.....
Hudson	Columbia	Dr. G. P. Hachenberg	1	50	10,15	12	31.5	5.11
Garrison's	Putnam	Thos. B. Arden	22	53	10	10	32.8	4.43
White Plains	West Chester	O. R. Willis	12	48	10	12	32.6	.....
Deaf and Dumb Ins.	New York	Prof. O. W. Morris	22	55	7	16	34.6	5.79
Columbia College	....do	Prof. Chas. A. Joy	28	53	7	14	36.0	6.50
Rutgers Fem. Col	....do	Mrs. M. M. Marsh	22	60	7	16	36.3	4.15
Newburg	Orange	Jas. H. Gardiner	22	49	8	12	32.0	3.30
Minaville	Montgomery	J. W. Bussing	21	40	7	6	26.2	3.70
Cooperstown	Otsego	G. Pomeroy Keese	22	49	7	— 2	27.0	3.69
Gouverneur	St. Lawrence	C. H. Russell	22	44	7	— 4	26.6	2.68
North Hammond	....do	C. A. Wooster	11	48	7	— 4	23.5	4.60
Houseville	Lewis	Walter D. Yale	27	49	7	— 2	25.8	3.68
Leyden	....do	C. C. Merriam	26	42	7	— 4	23.8	7.70
South Trenton	Oneida	Storrs Barrows	10	41	7	2	27.3	4.10
Cazenovia	Madison	Prof. Wm. Soule	27	46	6	6	28.9	.....
Oneida	....do	S. Spooner, M. D	22	48	6,7	12	30.0	4.82
Depauville	Jefferson	Henry Haas	26	47	7	1	27.5	4.38
Oswego	Oswego	Wm. S. Malcolm	10	49	7	13	30.7	4.60

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
NEW YORK—Con'd.				°		°	°	*In.*
Palermo	Oswego	E. B. Bartlett	26	45	7	5	27.1	3.98
North Volney	....do	J. M. Patrick	26	47	7	8	28.9	.....
Waterburg	Tompkins	D. Trowbridge	26	44	3	9	28.6	.....
Nichols	Tioga	Rob't Howell	22	48	7	11	30.2	.....
Newark Valley	....do	Rev. Sam'l Johnson	22	48	10	6	28.9	3.20
Himrods	Yates	Gilbert D. Baker	22	45	7	11	28.6	3.38
Rochester	Monroe	H. W. Matthews	22	49	7	14	32.2	2.92
Little Genesee	Allegany	Dan'l Edwards	16	46	7	— 2	28.1	2.50
Suspension Bridge	Niagara	W. Martin Jones	22	48	7	14	32.0	.....
Buffalo	Erie	Wm. Ives	26	50	7	13	31.2	3.09
Averages							29.9	4.24
NEW JERSEY.								
Paterson	Passaic	Wm. Brooks	22	55	10	7	32.8	5.96
Newark	Essex	W. A. Whitehead	1	49	10	10	33.2	5.44
Trenton	Mercer	E. R. Cook	16	52	10	10	37.3	6.37
Rio Grande	Cape May	Mrs. J. R. Palmer	31	56	4	15	36.6	6.13
Moorestown	Burlington	Thos. J. Beans	22	58	10	7	34.2	4.54
New Germantown	Hunterton	A. B. Noll	1	57	10	5	31.6	4.56
Lesser Cross Roads	Somerset	John Fleming	22	52	10	6	32.7	.....
Haddonfield	Camden	John Boadle	28	50	10	6	34.7	4.81
Newfield	Gloucester	E. D. Couch	22	60	10	5	35.5	.....
Greenwich	Cumberland	Miss R. C. Sheppard	16	54	7	14	37.2	4.21
Vineland	....do	John Ingram, M. D.	22	58	7	8	35.9	4.88
Averages							34.7	5.21
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	11	48	9	— 9	28.7	4.96
Hamlinton	Wayne	Jas. D. Stocker	12	47	10	6	30.9	3.95
Dyberry	....do	Theodore Day	11	48	10	— 2	27.6	4.50
Fallsington	Bucks	Eben'r Hance	22	56	10	8	35.0	5.20
Philadelphia	Philadelphia	Prof. J. A. Kirkpatrick	22	56	7	18	37.7	4.35
Germantown	....do	Thos. Meehan	22	58	7	11	34.2	.....
Do	....do	Ernest Turner	22	56	7, 10	15	34.7	9.60
Horsham	Montgomery	Miss Anna Spencer	22	55	10	8	33.6	5.45
Plymouth Meeting	....do	M. H. Corson	22	55	10	3	34.2	5.55
White Hall	Lehigh	Edw'd Kohler	28	49	10	1	32.8	.....
Factoryville	Wyoming	Rodman Sisson	22	48	10	3	28.7	4.82
Reading	Berks	J. Heyl Raser	22, 28	51	10	11	36.3	5.44
Parkersville	Chester	F. Darlington, M. D.	22	56	10	8	34.5	4.30
West Chester	....do	George Martin, M. D.	22	53	7	10	33.9	4.98
Ephrata	Lancaster	W. H. Spera	22	50	10	8	35.8	5.87
Mount Joy	....do	J. R. Hoffer	31	55	10	10	36.9	.....
Harrisburg	Dauphin	Wm. H. Egle, M. D	1	56	7	18	37.2	6.98
Carlisle	Cumberland	Wm. H. Cook, M. D.	31	51	10	12	34.2	8.10
Fountain Dale	Adams	S. C. Walker	16, 31	47	7	18	33.0	8.53
Tioga	Tioga	E. T. Bentley	12, 22	46	7	— 2	29.7	4.20
Lewisburg	Union	Prof. C. S. James	16	44	10	4	29.7	3.25
Grampian Hills	Clearfield	Elisha Fenton	11	46	7	2	26.1	4.95

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
PENNSYLV'A—Con.				°		°	°	*In.*
Johnstown	Cambria	David Peelor	11	47	25	10	31.3	4.47
Franklin	Venango	Rev. M. A. Tolman	26	49	7	4	31.5	4.12
Connellsville	Fayette	John Taylor	22	60	9	10	33.2	.....
Brownsville	....do	J. Allen Hubbs, M. D.	22	58	.....	.....	36.8	.....
New Castle	Lawrence	E. M. McConnell	27	50	7	11	31.8	.....
Beaver	Beaver	Rev. R. T. Taylor	11	52	7	16	36.0	4.80
Canonsburg	Washington	Rev. Wm. Smith, D. D.	11	64	7	8	34.3	2.32
Averages							33.1	5.24
DELAWARE.								
Milford	Kent	Mrs. A. C. Whittier	22	62	7	16	33.0	4.30
MARYLAND.								
Woodlawn	Cecil	Jas. O. McCormick	12, 31	56	7	12	34.8	6.00
Annapolis	A. Arundel	Wm. R. Goodman	22	58	7	17	40.2	6.15
St Inigoes	St. Mary's	Rev. J. Stephenson	22	61	9	23	47.2	.....
Mt. St. Mary's	Frederick	Prof. C. H. Jourdan	31	50	3	19	33.8	7.49
Frederick	....do	J. K. Hanshew	1	62	10	23	38.7	6.31
Averages							38.9	6.49
DIST. COLUMBIA.								
Washington	Washington	Smithsonian Instit'n	12	58	7	24	38.7	5.21
VIRGINIA.								
Johnsontown	Northampton	C. R. Moore	1, 12, 22	60	4	23	43.4	2.55
Hampton	Elizab'th City.	Jas. M. Sherman	12	61	4	24	42.5	3.55
Zuni Station	Isle of Wight.	Rob't Binford	22	63	10	24	44.4	4.53
Bacon's Castle	Surry	B. W. Jones	22	64	4, 10	22	43.5	.....
Comorn	King George	E. Tayloe	1	68	4	23	39.8	2.90
Vienna	Fairfax	H. C. Williams	31	57	3, 4, 7, 9, 24	25	38.5	7.10
Piedmont	Fauquier	Franklin Williams	12	58	24	16	36.4	5.30
Piedmont Station	....do	Wm. A. Martin	12	64	10	18	35.8	6.40
Staunton	Augusta	J. C. Covell	11	56	9, 24	21	37.4	5.13
Lexington	Rockbridge	W. H. Ruffner	1, 11, 12	60	9, 24	16	39.1	5.47
Lynchburg	Bedford	Chas. I. Meriwether	12	58	24	27	41.2	.....
Snowville	Pulaski	J. W. Stalmaker	1, 11, 22	56	9, 24	10	33.3	8.70
Near Wytheville	Wythe	Rev. Jas. A. Brown	12	53	24	13	34.0	4.10
Averages							39.2	5.07
WEST VIRGINIA.								
Weston	Lewis	B. Owen	11	60	24	11	34.5	.....
Cabell C. H	Cabell	C. L. Roffe	27	56	24, 29	24	37.2	1.30
Averages							35.9	1.30
NORTH CAROLINA.								
Kenansville	Duplin	Rev. Jas. M. Sprunt	12	72	8, 9, 10, 11	28	49.7	.....
Goldsboro'	Wayne	E. W. Adams, A. M.	1, 12, 28	69	4, 10	25	48.3	4.95
Oxford	Granville	W. R. Hicks, M. D	12, 22	62	10	22	43.0	4.20
Chapel Hill	Orange	David S. Patrick	1	75	10	28	48.1	.....

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
NORTH CAR'A—Con.								
				°		°	°	*In.*
Albemarle	Stanley	F. J. Kron	1, 12	68	9	14	41. 1	7. 09
Asheville	Buncombe	E. J. Aston	22	60	9	15	37. 5	5. 60
Do	....do	J. T. E. Hardy, M. D.	22	60	9	14	37. 2	.....
Averages							43. 6	5. 46
SOUTH CAROLINA.								
Gowdeysville	Union	Charles Petty	1, 12	68	10	22	43. 6	6. 97
GEORGIA.								
Atlanta	Fulton	F. Deckner and son	12	60	19, 23, 31	23	39. 6	6. 69
Berne	Camden	H. L. Hillyer	1	63	19	27	49. 4	5. 00
Penfield	Greene	S. P. Sanford	1	63	10	27	44. 2	5. 12
Averages							44. 4	5. 60
ALABAMA.								
Opelika	Lee	Miss Ella B. Shields	13	67	23	27	42. 5	9. 25
Carlowville	Dallas	H. L. Allison, M. D	12	68	23	28	47. 2	6. 71
Moulton	Lawrence	Thos. M. Peters, A. M.	11, 14	53	23	26	41. 5	5. 76
Greene Springs	Hale	H. Tutwiler, LL. D	12, 13	63	23	25	44. 4	4. 20
Mobile	Mobile	Lewes B. Taylor	21	70	23	30	51. 0	4. 18
Averages							46. 0	5. 21
FLORIDA.								
Port Orange	Volusia	Mrs. E. H. Hawks	1	81	19	33	58. 3	.....
Jacksonville	Duval	A. S. Baldwin	1	78	19	34	55. 8	3. 50
Pilatka	Putnam	Gen. G. D. Robinson	1	82	19	34	57. 2	4. 52
Ocala	Marion	Edward Barker	2	89	8	26	58. 2	.....
Chattahoochie	Gadsden	Malachi Martin	18	74	21	32	.....	1. 00
Averages							57. 4	3. 01
TEXAS.								
Houston	Harris	Miss E. H. Baxter	4, 19, 31	69	23	27	49. 6	.....
Austin	Travis	J. Van Nostrand	10	72	22	19	46. 6	1. 32
Clinton	De Witt	A. C. White, M. D	9, 10	75	23	26	50. 5	0. 74
Averages							48. 9	1. 03
MISSISSIPPI.								
Grenada	Yalabusha	Albert Moore	10, 11, 31	60	23	20	44. 6	7. 40
Near Brookhaven	Lawrence	Mrs. W. E. A. Keenan	10, 12	70	22	25	50. 5	8. 50
Natchez	Adams	Wm. McCary	10, 11	66	23	24	47. 7	8. 54
Marion C. H	Lauderdale	Thos. W. Florens	12	76	15, 29	24	49. 8	5. 20
Columbus	Lowndes	James S. Sull	14	61	23	24	43. 7	5. 73
Averages							47. 3	7. 07
ARKANSAS.								
Helena	Phillips	O. F. Russell	12	63	23	20	43. 7	.....
TENNESSEE.								
Elizabethton	Carter	Chas. H. Lewis	27	60	9	16	37. 7	3. 60
Tusculum College	Green	S. S. and W. S. Doak	13, 26	52	24	24	37. 5	3. 40

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
TENNESSEE.—Con'd.				°		°	°	*In.*
Lookout Mountain	Hamilton	Rev. C. F. P. Bancroft	12	61	23	19	40.7	.....
Austin	Wilson	P. B. Calhoun	11	62	23	20	38.8	3.94
Clarksville	Montgomery	Prof. Wm. M. Stuart	11	57	23, 24	23	37.5	4.14
Trenton	Gibson	W. T. Grigsby	7	62	24	21	41.4	5.30
Memphis	Shelby	Ed. Goldsmith	11	57	23	20	39.6	4.68
Averages							39.0	4.18
KENTUCKY.								
Pine Grove	Clark	Sam'l D. Martin, M. D.	4	56	24	18	36.0	3.85
Danville	Boyle	O. Beatty	4, 31	55	24	20	39.8	3.18
Shelby City	do	Howard Shriver	11, 27	53	24	19	37.2	3.28
Near Louisville	Jefferson	Mrs. L. Young	11	54	23	22	36.1	2.88
Averages							37.3	3.30
OHIO.								
Steubenville	Jefferson	Jas. B. Doyle	22	54	7	15	35.7	3.32
Painesville	Lake	E. J. Ferris	11	47	3, 21	20	31.9	3.33
Gilmore	Tuscarawas	Sam'l M. Moore	27	56	3, 7	16	34.0	6.10
Milnersville	Guernsey	Rev. D. Thompson	11	53	7	5	32.1	.....
Cleveland	Cuyahoga	Mr. and Mrs. Hyde	11	49	20	19	32.4	3.08
Gallipolis	Gallia	A. P. Rodgers	4, 27	52	9, 24	18	35.9	2.81
Kelley's Island	Erie	Geo. C. Huntington	11, 15, 31	42	3	19	32.3	1.99
Sandusky	do	Thos. Neill	11	47	3, 20	18	33.6	2.46
North Fairfield	Huron	O. Burrass	11	48	3	16	32.5	2.69
Westerville	Franklin	Prof. John Haywood	31	50	20	19	33.9	3.06
New Holland	Pickaway	John R. Wilkinson	11	62	3, 18	20	38.4	5.11
North Bass Island	Ottawa	Geo. R. Morton, M. D.	31	45	3	17	31.5	2.42
Marion	Marion	H. A. True, M. D	26	48	3	12	31.1	3.60
Hillsboro'	Highland	J. McD. Mathews	11	50	3	19	32.6	2.93
Toledo	Lucas	J. B. Trembly, M. D.	15, 31	45	3	13	31.4	2.46
Bowling Green	Wood	John Clarke	31	48	3	10	32.4	4.05
Kenton	Hardin	C. H. Smith, M. D	26	54	23	19	38.0	3.63
Urbana University	Champaign	M. G. Williams	26	49	3	15	31.5	3.12
Bethel	Clermont	Geo. W. Crane	11	52	24	18	43.6	2.50
Jacksonburg	Butler	I. B. Owsley, M. D.	26	47	3	19	33.3	3.81
Mt. Auburn Inst'e	Hamilton	Prof. S. A. Norton	11	52	3, 20, 24	22	34.7	3.70
Cincinnati	do	G. W. Harper	15	52	3, 24	20	34.6	2.46
Do	do	R. C. Phillips	12, 15	51	20, 24	26	38.6	3.50
College Hill	do	John W. Hammitt	11	48	3	19	32.7	5.63
Averages							34.1	3.38
MICHIGAN.								
Monroe City	Monroe	Miss H. I. Whelpley	30	48	20	16	31.1	2.00
Adrian	Lenawee	J. W. Helme	11	40	3	6	25.8	4.44
State Agr'l College	Ingham	Prof. R. C. Kedzie	26	45	3	0	28.2	2.11
Litchfield	Hillsdale	R. Bullard	26	43	3	6	27.7	2.70
Coldwater	Branch	N. L. Southworth	26	47	3, 8	10	27.7	4.23
Northport	Leelenaw	Rev. Geo. N. Smith	25	42	24	15	27.7	3.16
Muskegon	Muskegon	H. A. Pattison	10, 11, 26, 27, 29	46	20, 21	16	31.9	6.20
Otsego	Allegan	Milton Chase, M. D	9	51	26	16	36.5	.....

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MICHIGAN—Con'd.				°		°	°	*In.*
Copper Falls	Keewenaw	S. H. Whittlesey, M. D	9	35	23	—4	18.6	4.65
Ontonagon	Ontonagon	Edwin Ellis, M. D	10	42	24	—2	25.0	.....
Homestead	Benzie	Geo. E. Steele	10	41	24	14	28.0	.....
Averages							28.0	3.69
INDIANA.								
Aurora	Dearborn	Geo. Sutton, M. D	11	53	24	15	33.9	3.34
Vevay	Switzerland	Chas. G. Boerner	11	51	24	18	35.7	3.47
Mt. Carmel	Franklin	J. A. Applegate and daughters.	11	47	20, 22, 23	22	33.2	2.35
Muncie	Delaware	G. W. H. Kemper, M. D	10, 26	50	3	11	32.2	2.60
Laconia	Harrison	Adam Crozier	11	55	24	21	35.6	2.87
Columbia City	Whitley	Drs. McCoy and Maxwell.	11	51	3, 23	15	32.4	1.63
Knightstown	Rush	D. Deem	11	48	3	13	31.3	3.36
Indianapolis	Marion	J. V. Woolen, M. D	11	49	3, 24	14	32.4	2.42
Rensselaer	Jasper	J. H. Loughridge	11	45	23	5	26.1	2.35
Lafayette	Tippecanoe	J. W. Newton	14, 15	46	3, 20	10	30.6	4.50
Merom	Sullivan	Thomas Holmes	11	50	20	10	32.3	2.55
New Harmony	Posey	John Chappellsmith	11	54	20, 23	18	35.0	2.58
Harveysburg	Fountain	B. C. Williams, M. D	11	50	20	6	31.7	2.70
Averages							32.5	2.82
ILLINOIS.								
Chicago	Cook	J. G. Langguth, jr	10, 15	46	20	10	30.6	2.04
Near Chicago	....do	Sam'l Brookes	10, 11	42	3, 20	8	26.9	.....
Evanston	....do	Prof. Oliver Marcy	10	45	20	8	27.9	2.99
Marengo	McHenry	O. P. Rogers	11	48	20, 23	1	24.3	2.60
Mattoon	Coles	W. E. Henry	30	49	20	8	32.5	3.31
Aurora	Kane	Dr. A. Spaulding	11	43	20	3	25.1	3.13
Louisville	Clay	D. H. Chase, M. D	11, 29	50	20	8	34.8	3.80
Golconda	Pope	Wm. V. Eldridge	14	62	26	10	38.1	3.97
Belvidere	Boone	G. B. Moss	10, 26	42	23	—3	24.1	2.71
Sandwich	De Kalb	N. E. Ballou, M. D	10, 11	46	20, 23	2	26.1	3.17
Ottawa	La Salle	Mrs. E. H. Merwin	10	50	20	9	31.4	1.64
Decatur	Macon	Timothy Dudley	29	48	23	6	29.9	3.65
Winnebago	Winnebago	J. W. and Miss Tolman	10	41	20	—3	23.3	2.86
Rochelle	Ogle	Dan'l Carey	10	45	20	0	26.9	.....
Wyanet	Bureau	E. S. and Miss I. G. Phelps.	10, 26	48	20	—1	28.0	3.02
Tiskilwa	....do	Verry Aldrich	11	48	20	4	29.3	3.30
Hennepin	Putnam	Smiley Shepherd	10	50	20	—5	29.0	.....
Peoria	Peoria	Fred'k Brendel	10	48	20, 23	4	30.5	2.63
Springfield	Sangamon	G. M. Brinkerhoff	11	50	20	5	29.9	.....
Dubois	Washington	Wm. C. Spencer	30	54	23	4	32.0	2.11
Galesburg	Knox	Prof. Wm. Livingston	30	49	20	0	32.8	2.00
Manchester	Scott	Dr. J. and C. W. Grant	29	52	19	12	30.7	2.87
Mt. Sterling	Brown	Rev. A. Duncan	10, 24	48	20	0	28.3	2.70
Andalusia	Rock Island	E. H. Bowman, M. D	10	54	20, 21	—6	28.8	.....

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
ILLINOIS—Contin'd.				°		°	°	*In.*
Augusta	Hancock	S. B. Mead, M. D	10	53	20	— 3	26.4	2.08
Warsaw	....do	B. Whitaker	24	58	20, 23	0	29.1	2.19
Averages							29.1	2.80
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lüps	10, 31	41	24	— 2	25.7	2.79
Plymouth	Sheboygan	G. Moeller	10	44	3	— 1	21.0	2.50
Hingham	....do	John De Lyser	10	47	3	— 1	24.5	.....
Milwaukee	Milwaukee	I. A. Lapham, L.L.D.	11, 12	45	24	1	26.4	2.79
Appleton	Outagamie	J. C. Foyè	10, 27	42	24	— 2	25.6	.....
Geneva	Walworth	W. H. Whiting	11	44	3, 22, 23	6	24.6	2.55
Waupacca	Waupacca	H. C. Mead	10	40	24	—16	23.9	.....
Embarrass	....do	E. Everett Breed	10, 27	36	24	—17	21.9	3.65
Rocky Run	Columbia	W. W. Curtis	10	41	20	— 6	22.5	2.38
Madison	Dane	W. W. Daniels	10	40	23	— 3	22.3	2.64
Edgerton	Rock	H. J. Shints	10, 11, 26	44	20, 23	2	25.6	3.40
Baraboo	Sauk	M. C. Waite	10, 27	36	20, 21, 23	0	21.3	5.50
New Lisbon	Juneau	J. L. Dungan	10, 26	45	20	—10	22.3	.....
Bayfield	Bayfield	Andrew Tate	9, 27	38	23	—12	19.3	.....
Averages							23.4	3.13
MINNESOTA.								
Beaver Bay	Lake	C. Wieland	10	45	23	—10	20.5	0.90
Afton	Washington	Dr. B.F. & Mrs. Babcock	10	40	23	—16	19.0	0.85
St. Paul	Ramsey	Rev. A. B. Paterson	10	41	23	—10	20.8	0.96
Minneapolis	Hennepin	Wm. Cheney	9	39	23	—18	18.1	0.95
Sibley	Sibley	C.W. & C.E. Woodbury	9	41	23	—17	17.7	0.48
Koniska	McLeod	Thomas M. Young	.....	.....	23	—16	.....	.....
New Ulm	Brown	Charles Roos	9	42	23	—14	20.5	0.50
Madelia	Watonwan	W. W. Murphy	9	42	23	—20	20.4	1.28
White Earth	Becker	Dr. D. Pyle	8	41	23	—28	14.1	0.93
Averages							18.9	0.86
IOWA.								
Clinton	Clinton	Dr. J. P. Farnsworth	6	48	20, 23	0	24.0	2.50
Waukon	Allamakee	E. M. Hancock	10	40	23	—12	20.1	.....
Dubuque	Dubuque	Asa Horr	10, 11	44	23	0	25.4	2.62
Monticello	Jones	M. M. Moulton	25	38	22	— 4	21.1	2.25
Bowen's Prairie	....do	Sam'l Woodworth	10	48	23	— 8	23.7	3.43
Ft. Madison	Lee	Dan'l McCready	10	51	23	0	28.5	2.39
Guttenberg	Clayton	Jas. P. Dickerson	26	42	24	—12	21.2	.....
Mt. Vernon	Linn	Prof. Alonzo Collins	10	46	20	— 3	24.6	.....
Iowa City	Johnson	Prof. Theo. S. Parvin	10	46	20, 23	— 2	25.5	3.00
Independence	Buchanan	Geo. Warne, M. D.	10	44	23	—13	22.6	8.50
Near Independence	....do	Lucia M. Wheaton	11	44	23	—10	19.2	5.20
Waterloo	Black Hawk	T. Steed	10	44	23	—10	23.3	.....
Vinton	Benton	James Wood	10	49	23	— 6	24.4	4.06
Rockford	Floyd	H. Wadey	10	44	23	— 6	23.9	.....
Newton	Jasper	A. Failor	9	48	23	—10	22.2	1.02

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
IOWA—Continued.								
				°		°	°	*In.*
Algona	Kossuth	James H. Warren	9	42	23	—16	22.2	6.40
West Bend	Palo Alto	Ph. Dorweiler	9	40	23	—15	20.3	.....
Mineral Ridge	Boone	Z. S. Sullivan	3	49	23	— 7	25.8	2.51
Boonesboro	....do	E. Babcock	3	46	23	— 8	25.2	1.70
Fontanelle	Adair	A. F. Bryant	3	53	23	— 2	28.5	2.73
Rolfe	Pocahontas	Oscar I. Strong	9, 10	45	23	—12	24.5	0.64
Grant City	Sac	Mr. and Mrs. Miller	7	48	23	—12	24.3	3.12
Logan	Harrison	Jacob T. Stern	3	48	23	— 4	25.9	2.70
Woodbine	....do	M. E. and R. Witter	6	45	23	— 6	24.6	2.10
Averages							23.8	3.16
MISSOURI.								
St. Louis University	St. Louis	Rev. F. H. Stuntebeck	29	55	20	13	34.6	1.83
Allenton	....do	A. Fendler, M. D	29	62	23	6	33.0	2.70
Hematite	Jefferson	Jno. M. Smith	29	63	23	— 4	35.2	2.25
Rolla	Phelps	Homer Ruggles	29	61	23	2	34.7	1.62
Jefferson City	Cole	Nicolas de Wyl	29	56	20	9	32.0	.....
Hermitage	Hickory	W. Moore, M. D	10	53	23	4	31.2	2.40
Bolivar	Polk	James A. Race	26	60	22	8	37.3	4.40
Harrisonville	Cass	John Christian	9, 10	54	20, 23	0	30.1	1.62
St. Joseph	Buchanan	Rev. H. Bullard	3	56	23	4	31.8	2.20
Oregon	Holt	Wm. Kancher	3	62	20	0	29.9	3.43
Averages							32.0	2.49
KANSAS.								
Atchison	Atchison	Dr. H. B. & Miss M. Horn	10	56	23	— 4	29.9	1.65
Leavenworth	Leavenworth	Dr. J. Stayman	3, 10	55	23	— 8	28.5	1.33
Olathe	Johnson	W. Beckwith	3, 10	55	23	0	29.9	0.90
Paola	Miami	L. D. Walrad	8, 10	56	23	4	31.7	1.35
Baxter Springs	Cherokee	Ingraham and Hyland	8, 10	60	22	6	33.4	3.30
Lawrence	Douglas	Prof. F. H. Snow	3	63	23	4	36.9	0.87
Holton	Jackson	James Watters, M. D	3	59	22	0	29.7	.....
Neosho Falls	Woodson	Mrs. E. W. Groesbeck	10	55	22, 23	— 2	26.4	1.20
Le Roy	Coffey	J. G. Shoemaker	10	59	22	2	32.8	2.92
State Agr. College	Riley	Prof. B. F. Mudge	9	58	22	— 3	31.2	0.52
Council Grove	Morris	A. Woodworth, M. D	9	62	23	— 4	35.2	0.90
Crawfordsville	Crawford	Percy Daniels	10	60	20	— 3	31.9	4.20
Averages							31.5	1.74
NEBRASKA.								
Omaha Mission	Omaha Reserve	Rev. Wm. Hamilton	9	58	23	— 5	28.5	2.36
Elkhorn	Washington	John S. Bowen	9	52	23	— 3	25.8	.....
De Soto	....do	Charles Seltz	9	52	23	— 5	24.7	4.26
Bellevue	Sarpy	Mrs. E. E. Caldwell	3	55	23	2	28.4	2.20
Nebraska City	Otoe	P. Zahner	3	54	20, 23	— 2	27.7	2.28
Averages							27.0	2.78
UTAH TERRITORY.								
Coalville	Summit	Thos. Bullock	3, 8	43	21	—14	20.6	0.25

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	Count	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
CALIFORNIA.				°		°	°	*In.*
Monterey	Monterey	C. A. Canfield, M. D.	3, 6, 17, 18	65	21	27	48.9	2.42
Chico	Butte	W. F. Cheney, M. D	17	69	22	25	46.0	3.40
Watsonville	Santa Cruz	A. J. Compton	2, 14, 15, 16, 17	70	21	28	46.8	3.52
Vacaville	Solano	Prof. J. C. Simmons	5	76	21	29	43.5	4.43
Cahto	Mendocino	A. W. Thornton, M. D.	2	65	21, 22	31	46.2	.....
Averages							46.3	3.44
MONTANA TERRITORY								
Deer Lodge City	Deer Lodge	Granville Stuart	3	46	19	— 3	24.1	0.56
WASHINGTON TERRITORY.								
Walla-Walla	Walla-Walla	A. H. Simmons	13	58	22	16	34.6	5.68

NOTES ON THE WEATHER.

FOR DECEMBER, 1869.

Steuben, Me.—Anchor ice in river 9th; severe rain storm 19th, and freshets 20th to 23d; snow and ice gone 31st. Last four months unparalleled for high winds.

West Waterville, Me.—Faint aurora 5th; fields nearly bare 31st. December snow-fall, 25.5 inches.

Gardiner, Me.—River closed 4th; auroras 5th, 7th; last of three weeks, good sleighing 27th. December mean average temperature for thirty-four years, 23.09°; 1869, 25.10°. Average December rain in thirty-four years, 3.93 inches; 1869, 4.74 inches. Mean temperature of 1869, 43.92°; rain-fall of 1869, 51.72 inches.

Lisbon, Me.—Teams crossed Androscoggin River on ice 20th to 27th. Sleighing gone 31st.

Norway, Me.—Faint auroras 5th, 14th; good sleighing 23d to 26th; snow nearly gone 31st. Mean temperature of 1869, 43.236°; rain-fall last eleven months, 52.46 inches; snow on forty-six days, ninety-six inches.

Cornishville, Me.—December average mean temperature for forty years, 21°; for 1869, 27.32°. Snow this month, twenty-four inches.

Stratford, N. H.—Warmest December in twelve years; but little snow on the ground, but pleasant.

Whitefield, N. H.—Aurora 5th; fourteen inches snow on ground 31st. Snow 24.25 inches in October, November, and December.

Tamworth, N. H.—Ground bare till 4th; auroras 7th, 14th, the last in ascending waves; twenty inches snow 25th; crows and blue jays 28th; snow nearly gone 31st. A favorable month.

Goffstown Center, N. H.—Last part of month warm. Snow gone 31st.

Lunenburg, Vt.—Month mild, less snow than usual; auroras visible nearly every fair night or evening.

North Craftsbury, Vt.—Beautiful aurora 5th; good sleighing 5th to 31st. Month 5.77° warmer than in 1868, and 4.43° than in 1867.

Woodstock, Vt.—Beautiful aurora 5th; ice thirteen inches thick 15th.

Near St. Albans, Vt.—Snow seven inches, first sleighing 19th; hail and rain 22d.

West Charlotte, Vt.—Bright aurora 6th; spring-like, robins singing 23d, first time since October 9th; snow nearly gone 31st. Mildest December for years.

Kingston, Mass.—Very mild December, ground scarcely frozen; grass green in sunny spots.

Topsfield, Mass.—Good sleighing first half of month; frost gone and plowing 25th; month closes pleasant. Rain in 1869, 47.219 inches.

Milton, Mass.—Last quarter of month remarkably warm.

Lunenburg, Mass.—Open ground free from snow and frost 1st and 31st; hard gale 1st; drifting snow-storm 6th; month still and mild. Average mean temperature for thirty years, 28.57°; this, 22.61°.

Amherst, Mass.—Drifting snow-storm 4th to 6th; sleighing 7th to 25th; snow off open ground, 31st.

Middletown, Ct.—River closed 8th, reopened 28th, and navigation resumed 30th.

Brookfield, Ct.—Except first part, month mild; last week spring-like, but roads nearly impassable.

Moriches, N. Y.—First third of month some cold days, remainder very mild.

South Hartford, N. Y.—Canals closed and many boats frozen in 9th.

Fort Edward, N. Y.—Month very mild, but little snow and sleighing.

Garrison's, N. Y.—Ground has been frozen six inches; no frost 31st.

New York City.—Auroras 13th, 15th; meteors morning of 13th. Month warm, moist, cloudy; six inches snow 6th, but clear 7th to 16th.

Cooperstown, N. Y.—Unusually mild December, only a few days sleighing.

North Hammond, N. Y.—Tremendous gale 22d. Month closes with ground frozen hard; little snow, no sleighing.

Houseville, N. Y.—Snow, windy, 3d, 4th, 18th; snow gone 11th; sleighing good, four to six inches; snow on ice 31st.

Leyden, N. Y.—Autumn mean temperature, 42.63°. Mean temperature of 1868, 42.40°; of 1869, 41.88°. Rain and melted snow of 1868, 53.40 inches; of 1869, 69.12 inches. Snow of 1868, 19 feet 2½ inches; of 1869, 18 feet 5 inches; of December 1869, three feet.

South Trenton, N. Y.—Balmy Christmas; warm December; ground bare, frozen only four inches; swamps full of water and scarcely frozen.

Depauville, N. Y.—Auroras 5th, 7th, 30th. Ground bare much of the month. In 1869, rain on ninety-one days, snow on fifty-nine, sleighing on ninety-five. No frost May 27 to September 28. Mean temperature, 43.4°; rain-fall, 50.34 inches; snow 105.55 inches.

North Volney, N. Y.—Hardly any snow; roads muddy; stock grazing in the fields. Month 5.28° warmer than in 1868.

Palermo, N. Y.—Mean temperature of 1869, 43.91°; of spring, 28.5°; summer, 65.6°; autumn, 45.1°; winter months, 24.6°. Rain, 35.8 inches; snow, eighty-three inches.

Buffalo, N. Y.—Dark, stormy month; only twenty-eight hours sunshine in its thirty-one days. No ice in lake, harbor, or canal; no frost in ground; air, spring-like.

Newark, N. J.—Mean temperature above sixteen out of twenty-six Decembers, and above the average of the twenty-six; rain-fall also ex-

ceeds the average 1.4 inch. A few days' sleighing on the snow of the 6th.

Trenton, N. J.—Rain-fall eighty-three days in 1869, 43.91 inches; and eighty-six entirely clear days.

Rio Grande, N. J.—A large black snake killed while sunning itself on the 31st.

Moorestown, N. J.—Northeast rain-storm 26th to 28th, with fogs 27th.

Newfield, N. J.—Mild December; more than half was rainy and cloudy; last half, good plowing. Mean temperature of 1869: Spring, 49.2°; summer, 74.2°; autumn, 51.2°; winter, 35.3°; the year, 52.4°. From frost (May 6) to frost, (September 28,) one hundred and forty-four days, of mean temperature 69.6°. Thermometer above 32° from April 25 to October 20.

Greenwich, N. J.—*Viola pedata* blooming under the snow 11th—dandelion in blossom 19th. Three days' storm 25th to 28th; not cold after 10th, but cloudy and stormy.

Vineland, N. J.—Temperature of 1869: Spring, 50.27°; summer, 76.46°; autumn, 52.18°; winter, 36.48°; the year, 53.85°; of 1868, 52.33°. Rain of 1868, 56.305 inches; of 1869, 50.655 inches.

Dyberry, Pa.—Delaware and Hudson canal closed 4th; sleighing 7th; ice nine inches thick 25th; sleighing poor 31st.

Fallsington, Pa.—Snow, rain, sleet, severe snow-storm, 6th; severe gale and rain 18th; hail and rain 22d.

Plymouth Meeting, Pa.—Snow 6th, and sleighing till 12th; no frozen ground after 25th; mean temperature of 1866, 51.40°; 1867, 49.91°; 1868, 49.91; 1869, 51.49°.

Factoryville, Pa.—Snow, frost, ice, gone 29th; spring weather 30th, 31st. Mean temperature 1869, 45.95°; rain, 44.23 inches.

West Chester, Pa.—Ice four inches thick 11th; frost gone 31st.

Harrisburg, Pa.—Canal closed 3d, grain green; no ice nor snow in the valley 31st.

Fountain Dale, Pa.—Month 5.29° warmer than in 1868. Mean temperature of 1869, 50.85°.

Tioga, Pa.—Heavy fall of snow 18th, and nearly gone 23d; robins 30th; warm and pleasant 31st.

Grampian Hills, Pa.—Cloudy and cool December; no heavy rains, snows, or winds; roads mostly good; ground covered with snow.

Johnstown, Pa.—Ground not yet frozen three inches deep.

Connellsville, Pa.—Mean temperature—winter, 1868–'9, 31.48°; spring, 1869, 46.29°; summer, 70.51°; autumn, 47.02°; year, 49.40°.

Newcastle, Pa.—Month about four degrees warmer than last four Decembers; last week like spring.

Beaver, Pa.—An unusually mild but cloudy December.

Milford, Del.—Rain 4th, and all day 5th, and till 3 p. m. 6th, then snow; clear and cold 7th.

Woodlawn, Md.—Slush ice in Susquehanna 7th to 12th. Mean temperature of 1869, 52.36°; rain-fall 48.36 inches.

Mount St. Mary's, Md.—Month warmer than in 1868; mean temperature of 1869, 50.68°; rain-fall, 47.76 inches.

Hampton, Va.—Not a flake of snow and but little ice this month.

Zumi Station, Va.—Roses gathered in open air on New Year's day! Mean temperature of 1869, 58.54°; rain-fall, 37.78 inches.

Piedmont, Va.—Heavy wind, rain, hail, and badly drifted snow 18th—remained till 26th.

Near Wytheville, Va.—Very cold December; no Indian summer.

Albemarle, N. C.—Much rain and wind since 21st; great breadth sown of grain, good stand.

Gowdeysville, S. C.—Snow 18th; white frosts seven mornings.

Berne, Ga.—Strong gale 17th; severe frosts 19th, 20th; thunder and lightning 22d.

Penfield, Ga.—White frosts 30th, 31st; very smoky 31st.

Moulton, Ala.—As usual, unfavorable month for out-door labor; five inches snow 17th, 18th.

Havana, Ala.—Very heavy frosts 29th, 30th, 31st; thunder and lightning 31st.

Mobile, Ala.—Heavy white frosts 8th, 16th; southeast gale 21st; ice 23d.

Jacksonville, Fla.—Five frosts, harmless; mean temperature but a little below average of twenty-four Decembers.

Ocala, Fla.—Frosts nights of 7th, 18th; the last, with north wind and mercury at twenty-two degrees, froze vegetables hard; but before midnight south wind set in, and a thaw.

Houston, Texas.—First ice 18th; gutters and ponds frozen 22d, 23d; thunder shower 24th.

Austin, Texas.—First general frost 7th, and five after 15th.

Clinton, Texas.—Severe frosts 15th, 16th; first ice 18th, 22d, 25th, 29th.

Natchez, Miss.—Frost, ice 8th; snow-flakes 15th; almost continuous rain four days, 19th to 22d.

Marion, Miss.—Heavy thunder and lightning south and southwest 21st; heavy frost and bright, clear day 29th.

Elizabethton, Tenn.—Much cloudiness, but not frost enough to prevent plowing.

Clarksville, Tenn.—Melting snows 17th, 18th; drifting snow 20th; then sleet and rain 21st; then rain and mist 22d.

Trenton, Tenn.—First snow 20th, ice 24th; last three days pleasant, birds singing; ground not yet frozen an inch.

Pine Grove, Ky.—A dark, damp December, with six inches drifted snow.

Shelby City, Ky.—Snow, four inches, 21st; nearly gone 22d; first skating 24th.

Painesville, Ohio.—Darkest December known; not one entirely clear day, and only two pleasant ones.

North Fairfield, Ohio.—Showery; distant thunder 11th; snow gone 22d.

North Bass Island, Ohio.—Lake frozen 20th, and open again 24th to 31st; snow in December 6.25 inches.

Hillsboro, Ohio.—Mean temperature of 1869, 50.236°; rain-fall 38.008 inches.

Toledo, Ohio.—Auroras 25th, 26th; very pleasant 30th, 31st; much cloudy, stormy weather. The year had more rain than any on my record, and, except 1866, a lower temperature.

Jacksonburg, Ohio.—Snow, hail, rain 4th, and with sleet 21st; sun invisible 9th to 19th.

Mount Auburn Institute, Ohio.—A dull, damp, cloudy month; sun seldom seen.

Monroe City, Mich.—Adjourned Indian summer 30th, 31st.

Litchfield, Mich.—Aurora, 18th; no sleighing after the 20th; wheeling excellent 31st. A cloudy, dark month.

Northport, Mich.—A mild December; not snow enough to protect the undug potatoes from freezing.

Homestead, Mich.—Sunshine on eleven days only; less snow than usual; rivers and large lakes and bays open.

Vevay, Ind.—Heavy fall of snow; rain 21st, 22d.

Mt. Carmel, Ind.—A dark month, only three clear days; no hard freezing, and little light.

Laconia, Ind.—Hardly a clear day in October, November, and to December 28th, then delightful to 31st.

Mattoon, Ill.—Few days of sunshine, and none wholly clear.

Louisville, Ill.—First half of month cold, rainy, cloudy; last half sunshiny, freezing nights.

Aurora, Ill.—Mild month; plowing till 17th; little snow; ground frozen about six inches 31st.

Belvidere, Ill.—Month of even temperature, roads smooth, good sleighing and wheeling. Mean temperature of 1869, 44.85°.

Winnebago, Ill.—Nine inches snow, with high wind 21st, 22d.

Tiskilwa, Ill.—Good month for out-door work; little freezing, but much cloudy weather.

Hennepin, Ill.—Cloudy, smoky, and misty; frost and mud alternating. Illinois River closed 20th, but ice bears only light skaters.

Dubois, Ill.—Great south wind and some rain, 8th to 11th; severe northeast snow storm 21st.

Andalusia, Ill.—Mississippi partly closed 23d, and reopened 31st. But little frost in ground.

Plymouth, Wis.—December average mean temperature of five years twenty-one degrees, this, twenty-four degrees; rain fall 1.7 inches, this, 2.5 inches.

Milwaukee, Wis.—River closed 2d. Average annual mean temperature for twenty-seven years 45.92°, of 1869, 44.44°; of December for twenty-seven years, 25.45°, this, 26.37°. Annual rain for twenty-seven years, 30.31 inches, for 1869, 37.81 inches; of December for twenty-seven years, 1.91 inches, this month 2.79 inches.

Waupacca, Wis.—On eight days sixteen inches snow.

Embarrass, Wis.—Snow-birds 6th; Aurora 29th. A mild but cloudy December.

Baraboo, Wis.—Worst December known in Sauk County for cold, cloudiness, snow, good sleighing, and money tightness.

New Lisbon, Wis.—Cloudy and stormy days, twenty-four, (eighteen in succession;) clear, four; mixed three.

Afton, Minn.—Bright aurora 4th; four inches snow in month.

Minneapolis, Minn.—Cloudy but pleasant month, good sleighing latter part.

Koniska, Minn.—Pleasantest December in fourteen years; ice sixteen inches thick.

Waukoa, Iowa.—Aurora 4th; eighteen days sleighing, month mild.

Dubuque, Iowa.—Brilliant metor, north, 3d; aurora 4th.

Bowen's Prairie, Iowa.—Cloudy till 19th, rest pleasant.

Iowa City, Iowa.—Very mild month. December average mean temperature for thirty years, 23.55°, this, 25.46°.

Guttenberg, Iowa.—By 31st, neither sledding nor wheeling; cattle look well.

Independence, Iowa.—Snow and frost gone 11th; first sunshine for many days 19th.

Algona, Iowa.—Finest December known here; but little snow.

West Bend, Iowa.—Faint aurora 4th. Snow on nine and rain on five days; month pleasant; snow nearly gone 31st.

Mineral Ridge, Iowa.—Much snowing and raining till 22d, then fine weather till 30th.

Boonesboro, Iowa.—Month had thirteen entirely cloudy, and five clear days, and was three degrees above average of fourteen years.

Hematite, Mo.—Ducks and bluebirds 25th to 31st. Mean temperature of 1869, 55.14°; rain-fall 45.5 inches.

Jefferson City, Mo.—Faint aurora 29th; heavy snow 21st.

Oregon, Mo.—Faint auroras 4th, 5th; snow and frost gone 8th; good sleighing 23d, going 24th.

Atchison, Kan.—River blocked with ice 21st, 22d; month 6.6° warmer than in 1868.

Leavenworth, Kan.—Mean temperature of 1869, 50.5°, one-half degree below 1868; rain-fall 43.35 inches, 1.97 inches above average of last three years.

Burlington, Kan.—Only rains in month 9th, 10th; first ice on river 19th; warm and pleasant 24th to 31st.

Holton, Kan.—A pleasant fall, with some cold days; December very cloudy; grain looks promising.

Manhattan, Kan.—Bright aurora 5th; Kansas River frozen 22d; open again 25th.

Le Roy, Kan.—Ice on Neosho River, three inches, nearly melted 26th.

Council Grove, Kan.—Beautiful weather to 9th; ground frozen six inches 15th; four inches snow 21st; snow gone 28th; month dry and pleasant.

Omaha Mission, Neb.—River closed 1st, open 12th, closed again 20th; month pleasant as a whole.

Bellevue, Neb.—Aurora 5th; month cloudy, not stormy, and 5.9° warmer than in 1868.

Nebraska City, Neb.—Aurora 5th; river closed 23d; crows in great numbers 26th.

Harrisburg, Utah.—Cold, dry weather, preventing sowing, and damaging sowed grain. Must depend on the States for garden seeds, ours destroyed by grasshoppers.

Watsonville, Cal.—Coldest December in five years; uplands too dry to plow; only half our usual rain.

Vacaville, Cal.—First ice 19th; good grain sowing; more rain here than in rest of the State.

Cahto, Cal.—First ground-freeze 5th; hail 25th.

Deer Lodge City, Montana Ter.—Flies, swarms of small 2d, green 26th; aurora, white 4th, beautiful "black" 5th, faint "black" 6th; river closed 17th. Seven "Chinook" (S. W., or rain) winds this month.

Walla-Walla, Wash. Ter.—Aurora 22d; snowed 23d, while a "Chinook" wind blew and rain fell on the Blue Mountains, twelve miles distant; mild 25th to 31st.